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ORGANIZATION

How the Factory Team is Organized, Made Efficient, and Kept Fit

Being the Third Unit
of a Course in Modern
Production Methods

BUSINESS TRAINING CORPORATION
NEW YORK CITY

~~C13 vol III~~

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Course in
Modern Production Methods

JOHN CALDER, Director

With the assistance and cooperation of

FRED H. COLVIN
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JOHN A. HARTNEDY
J. WILLIAM SCHULZE
JOHN H. VAN DEVENTER

The text of the Course is issued in six units as follows:

I. Teamwork
II. Handling Men
III. Organization
IV. Machinery and Materials
V. Production Records
VI. Management

BUSINESS TRAINING CORPORATION
NEW YORK CITY

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The
Human Element in Organization

"THE entire history of the development of business organization is a story of progress in increasing human efficiency, and thus increasing the ability of men in productive and serviceable work.

"Gigantic machinery, big-scale production, world-wide distribution—all these represent ideas that in themselves, because of their very bigness and daring, are fascinating. But the essential thing about machinery is its utility as the helper of man—not its marvelous construction and awe-inspiring size. The important thing about big-scale production and world-wide markets is not the bigness of the ideas nor the impressiveness of the activities which they represent, but the multiplication of human energy, the increase of industrial productivity, and the larger satisfaction of human wants which result from business organized and operated on a big scale.

"In other words, the *human element* is the dominant element, the controlling and decisive factor. Business exists to supply human wants. It carries on its activities through the operation of human brains and human hands, and no machinery has ever been invented to take the place of these essentials. We have machinery, of course, and our systems and standardized methods; but none of these things can properly perform their work if the human element is ignored or lost sight of. They must be planned and shaped at every step to fit the needs, dispositions and abilities of people."

GEORGE M. VERITY,
President, American Rolling Mill Co.

I

Organizing on Paper

SOME people—and this applies especially to a great many otherwise capable production men—have a natural impatience of conferences, planning, and anything else which seems to delay actual operations. They are men of action. They are eager "to get to work." They pride themselves on "doing things." Sometimes they remark that they can have the job done and over with before the other fellow gets through thinking about it.

A Manager of the Driver Type

A certain mill manager in the East held this point of view. He was an energetic fellow who had come into a going plant, taken hold with characteristic enthusiasm, and made a big hit with the organization. He was a fine leader; his men liked him; he had capable foremen and other assistants; and he took full advantage of these opportunities to push production for all he was worth. He was a hard worker. He "ate work alive" and he had the power of imparting his enthusiasm and spirit to those under him. As a result, he earned the reputation of being a good production manager.

Then came the war with its new problems and its increased demands upon industry. This manager found himself called upon to increase his output, but further increase seemed impossible. Drive as hard as he might, he could not bring production beyond the old level. The only result was to stir up discontent among his men. They were all—foremen, mechanics, helpers, and laborers—working full time and keeping busy all the time. There seemed to be no possibility of getting out more production.

Yet other plants, under the pressure of war demands, had increased and were steadily increasing their output. There was, for example, a New England plant under the same financial control as this one. It was turning out fifty per cent larger production, though the difference in size between the two organizations was very slight. After desperately trying for a few weeks his old remedy of putting "pep" and "ginger" into the force, the manager decided to visit the New England plant and have a heart-to-heart talk with the manager there.

His entrance into the New England plant

Getting a New Point of View

was a pleasant shock. Instead of the confusion—workers moving about in a great hurry—to which he was accustomed in his own plant, he found order, clock-work precision of movement, and comparative quiet. Mechanics and helpers seemed simply to reach out for tools and supplies, instead of rushing across the shop or shouting for them. Everything seemed to move ahead automatically.

He found the same atmosphere in the office. The manager's desk was like a battleship cleared for action—no disorder of papers or piled-up array of unfinished business, no impatience of a heavily-burdened executive, no frantic assistants rushing in and out to get a decision on this detail, or to report the emergency in Shop 2, or to ask for a new assignment for Shop 1.

"Come in, Brown. Glad to see you. Have a chair," was the cheery welcome.

"Lawrence, I understand your production is better than 20,000 a week," said the visitor, as soon as the preliminaries of greeting were over.

"Yes, that's a fact; and we'll beat that record soon," answered Lawrence.

"That sounds impossible."

"Well, this is Thursday afternoon, and the reports in my hands now show that the production, outside of rejects, for the first three days of this week is close to 14,000."

"For Heaven's sake, man! How do you do it? No matter how hard I drive, I can't get above 14,000 for a whole week."

"It isn't so much a matter of 'driving,' as it is a matter of organizing," said the manager of the New England plant. "Pull your chair around here, Brown, and take a look at this work of art." Lawrence pointed to a framed chart which hung on the wall behind his desk. "It's our organization chart. It isn't merely a picture of our organization, showing what departments we have; but it is an analysis of our organization, and a guide to it. It shows who is responsible to whom and exactly what part of the work each department or sub-department is responsible for. There is a copy of this chart in every department, and every man in our organization is asked to familiarize himself with it. It helps to a better understanding, not only of what each is to do, but also of our teamwork as a whole.

The Organizer

"This chart, as you see, shows the lines of authority and responsibility for all the departments and all the executives and sub-executives including foremen. We call this the general chart. Then in each department there is a special departmental chart showing in exact detail the organization of that department. The names of the individual mechanics and workmen are on that chart, and their functions are clearly stated. No chance is given for misunderstanding or confusion as to what work is expected of each man. Each can see, not only his own job described, but also that of his fellow workmen. This helps to a better grasp of the layout of the department, reduces the danger of friction among employees, and also makes for better teamwork in the department.

"Shall I go ahead with this dope, Brown?" asked Lawrence, as he turned from the chart to his desk.

A Natural Prejudice

"Yes, go on," said Brown, laughing. "Oh I know my reputation. I've raved against this efficiency business, this organizing-on-paper sort of thing. It has always seemed to me a waste of time and brains to fool with paper plans when you might be doing really productive work. But I'm willing to be convinced. I came down here to find out how you get out your big production, and if you are willing to tell me I'm only too glad to listen and learn."

"The chuckle-heads who call themselves 'experts' and make a fad of drawing up charts and laying out preliminary sketches, are the fellows who have prejudiced you, and dozens of other good production men, against this sort of thing," answered Lawrence. "Of course a chart is a waste of time and of brains unless it helps the production—unless it simplifies the movement of materials or economizes the use of men or of machines or of floor space, unless it cuts out waste and reduces friction. Our charts do this. If they didn't I wouldn't fool with them two seconds.

Getting a Run-down Plant on its Feet

"When I took hold of this plant five years ago it was run down both in equipment and in men, in debt, and rather in bad odor with labor. To get it on its feet seemed at first glance an impossible proposition. I had always been accustomed to the method of 'let the organization grow,' but you could see with one eye shut that such a rundown establishment as this would never grow of its own accord. Moreover, economy demanded that we make the very best possible use of the force we had. So I sat down to my first real honest-to-goodness job of planning. I couldn't depend on guesswork. I couldn't wait for things to adjust themselves. I had to organize, or rather to reorganize, our existing working force and equipment to get the highest rate of production of which they were capable. It was a matter of life or death to the plant.

"Well, sir, that was the beginning. Organizing on paper made it possible for me to get pretty good production out of that old mill, and from such a start we climbed up and up, building a little every chance we got, adding new machinery as our operations justified it and as our organization grew, and keeping an eye on leaks and unnecessary waste at every step of the progress.

Readjusting to War-time Conditions

"We didn't simply grow. We developed this plant and built up this organization along definitely laid-out lines, and because it was mapped out in advance I had a better grasp of it and was in a position to make quick readjustments when the war hit us. You know fairly well what we have been doing under war conditions. That little idea of organizing on paper is the thing that did the trick."

"But we've been making out splendidly in our plant before this," interrupted Brown. "I made a killing the first year, and my directors have been mighty keen over the way things were going. It's this impossible war-time craze for speeding up that has given our plant a black eye."

"Well, you can cure it by this method," said Lawrence. "It saved me. I don't know any scheme that will work miracles. The whole proposition is one of knowing your resources down to the last item, and of making use of that knowledge most effectively.

"I think you can see from this," he went on, tapping the big chart which they had just examined, "that we have a very clear understanding here of how our work is subdivided. This general organization chart is the foundation for all our planning. But we go farther than that. We not only set down our plan of plant organization, but we also put down on paper our plan of work organization.

Organizing the Work

"Of course every production man organizes his job. You lay it out in your mind even if you don't put it on paper. You figure just how long it should take and what materials, and in your mind's eye you see the whole thing in process, from the start to the finished product. But the trouble is your foremen can't read your mind; and even after you have explained the thing and they have fully grasped it, there is no guarantee against bad memory, or the failure to get the instruction across fully to the workmen. Moreover, anything you lay out in that way is bound to contain a considerable element of guesswork or estimating.

"More time and money are lost by plunging ahead blindly than by spending a little time in quiet thinking and planning. The engineer who figures out the design of an intricate machine and makes the first blueprints, is at least as much of a producer as the manager or foreman who sees that the design is accurately executed.

"In your shop you make out a production order for each job, giving general instructions to the foremen and specifying materials, etc. We carry that idea out to the minutest detail. We plan every job in advance—on paper. We never do any guessing where it is possible to get exact figures—and it generally is. We plan the course of the job through the plant, carefully routing it from department to department, and from workman to workman. We plan how the operation of each workman on the job is to be performed, so that nothing is left to his guesswork or to experiment. Moreover, we schedule the work just as a trainmaster schedules the movement of trains. This practically eliminates idle time, for one job crowds right upon the heels of the preceding one. The result is that the machines are always going—and going productively.

"I'll take you down to the planning department in a minute and show you how this thing is actually done in practise, with job cards, instruction cards, route cards, blue prints, tool lists, and so on. But you can see from what

I have outlined, how this system saves us dollars in every direction.

"Don't call it 'scientific management' or 'efficiency engineering' or any of those highbrow names. It's applied common-sense, that's all. It is simply organization—and the organization of work is based upon our organization of men and equipment.

Thinking it Out Ahead

"Thinking ahead—that is really the basic idea of our whole system. The functions and responsibilities of the individual departments, executives, and men have all been thought out in advance, definitely analyzed and stated, and set down on paper. There can be no argument as to who is responsible when a certain task or a certain part of a task is to be done. There can be no 'passing the buck,' no shifting the blame, no evasion of duty, and no loss of time settling such points. They are settled in advance. Everything is down in plain view of everybody, and all understand the organization clearly.

"In organizing the job we do exactly the same thing—do as much of the thinking in advance as possible. We analyze the job on paper; we lay out its labor requirements, its tool requirements, its material requirements, in advance, on paper; we assign it and schedule it, on paper. This fixes responsibility for each step of the individual job, just as the organization chart fixes responsibility for each function within the organization. Moreover it removes the function of planning from the workshop, and enables the workman to concentrate on the job. It saves labor time, machine time, and it saves material—we've had less spoilage under this system than before.

"And even apart from these other advantages, getting the thing down on paper clarifies it in your own mind. You can see it more clearly, you can put your finger on its weak spots more readily, and you can go ahead with better assurance and confidence."

Paper Planning Clarifies the Work

Of course the unanswerable argument for Lawrence's system was the fact that it worked. Under it the New England plant was steadily mounting upward in production output. Its per-unit costs were lower. Moreover, under these conditions the workmen were earning more money, and though they were turning out more output per man they were doing it with less straining, less overtime, and more contentment than was the case in Brown's plant.

Lawrence spent the whole day with Brown, took him over the plant, and showed him in detail just how organizing on paper had materialized in more efficient production in the shop. When Brown went home it was with a new conception of the value of planning. He was a convert. He admitted it. And to make his conversion more complete Lawrence loaned him one of the assistants from the New England plant who spent some time with Brown helping him in the reorganization and charting of his own organization.

This incident happened in 1917. Before the summer of 1918, Brown's plant and Lawrence's were neck and neck in a friendly rivalry for a production record. Both had rapidly increased their output within the few months, and at last accounts Brown was crowding the New England manager dangerously close.

II

The Organization at Work

THE organization on paper is a picture of the organization at work. In fact, the more closely it is tied up to the actual operation of the plant, the more valuable the organization chart is as a guide, an index, and a stabilizing governor.

The Organization Varies with the Plant Conditions

There is no one type of organization which will do for all industries. Even in the same line of production, the character of the organization varies with differences in size, equipment, location, labor conditions, and similar factors. In the case cited in the foregoing chapter, for example, one of the plants was situated near a water-power development whereas the other was compelled to use steam and therefore had to maintain a large power department. This difference due to location affected the organization of the two plants in at least this one department.

However, there are certain fundamental functions or operations which must be performed in producing any kind of goods.

Nine Basic Functions

They are the functions which are common to all industries, and which must be taken care of in every factory. They may be called the basic functions in producing, and will be found in the makeup of any typical industrial plant.

Take your own plant, for example, and analyze its organization as you find it at work. You will see that in order to get out the production there are nine basic functions which must be performed. These are:

1. *Planning the work.* Whether this is done by a large planning department, or by the manager or foreman of the workroom, it is something that *must* be done before the work itself can be begun. Even the blacksmith in his crude one-man shop plans his job of hammering out a plow. Without preliminary planning of some sort in the factory, it would be impossible to know how much raw material to purchase, what labor is needed, and what price to charge for the finished product.

2. *Procuring raw material and supplies.* This is the function usually attended to by the purchasing department, though in small plants it may be looked out for by the manager or some other executive in combination with other functions.

3. *Caring for and giving out supplies and material.* This function is necessary to keep purchases, as they are received, in proper order and under proper protection, and to get them promptly to the working departments when they are needed. It is usually looked after by the stores department, sometimes called stock room or storehouse.

4. *Procuring labor.* Even in a going plant, with all of its departments organized, there is usually the necessity of hiring additional workers from time to time as old ones quit or are retired by age or disability or death. Many large plants have a special department, the employment or personnel department, which attends to this task of keeping the factory adequately manned. Later chapters of this Unit will explain how such departments work.

5. *Providing power, heat, light.* This is the function of the department centered in the power house, except in the case of those factories which buy power, heat, and light from outside. Frequently a city factory or one located near a large hydro-electric development is able to do this and dispense with a power house altogether.

6. *Changing material into the finished product.* This is the actual processing, ac-

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complished by means of labor and machinery, and is of course the central function in production. It includes not only working upon material in the raw state, but also assembling finished parts to make a complete product.

7. *Moving material and products in the course of production.* In large plants dealing with heavy material, as for example a steel plant or a locomotive factory, the problem of transportation is a large one and is cared for by a regular transportation department equipped with steam or electric carrying machinery. In other types of industry men, aided perhaps by hand trucks, serve in this function.

8. *Keeping proper records.* Without records of labor, of material and supplies used, of production output, of overhead charges, and of the other items entering into the operation of the plant, the whole group of activities would soon be in a hopeless muddle.

9. *Supervising.* Finally, all activities must be intelligently directed and supervised. This function is performed by the general manager or other chief executive of the plant aided by the superintendent, foremen, and assistants.

Such an analysis does not pretend to give you a layout of the organization. It is, *A Cross Section of the Production*

rather, a cross section of the manufacturing, showing what elements enter into its operation. Consider your own plant. Perhaps two or more of these functions are combined in one department, and under one foreman or assistant. Some other function may be shared by two or more departments. In a certain plant engaged in the manufacture of machinery, there are four distinct departments which together perform the sixth function on our list. There are (1) a foundry department, (2) a forge shop, (3) a pattern shop, (4) a machine shop. And in that plant it takes the teamwork of these four departments to change raw material into the finished product.

But even if such an analysis does not furnish a chart of the organization, it does show very clearly the essential elements in the teamwork. By classifying the work into these simple fundamental operations you can understand more clearly the "why" of any department or sub-department, and be guided in planning for greater economy or efficiency of work. In fact, some such analysis as this is a necessary preliminary to the drawing up of an organization chart—if the chart is to be of any real value to the management and operation of the plant.

The operation of a factory is much like

the operation of any other kind of teamwork. In a football team, for example, the work is divided, functions are specialized, and yet everything works toward one final end—that of putting the ball across the goal. In playing the game some men perform the function of running with the ball, others do the kicking, others are designated for interference, and still others are assigned to do the heavy plunging and line rushing. It is the same principle that we find operating in the factory, with some men attending to the planning, others purchasing the raw material, others storing and caring for the material, others putting material through the production processes, and so on; with all these activities working toward the one purpose of getting out the production.

Four Essential Conditions

There are four essential conditions to successful teamwork, which we find in the football eleven at play and in the factory organization at work. In each case:

1. The organization knows the goal or purpose of its teamwork and the methods to be followed toward that end.

2. The organization knows the separate functions to be performed in carrying out this teamwork.

3. The organization has grouped and as-

signed these functions so that—(a) Authority and responsibility are clearly defined, (b) The man or men best fitted to perform a particular task or function are assigned to it, (c) Instructions are clearly given in advance and fully understood.

4. The organization is so balanced that the teamwork of each part of it keeps abreast of that of the other parts.

When Production Reaches Its Highest Level

When these conditions are met, the greatest harmony and smoothness of work is attained, waste is reduced to the minimum, and production—whether that production be the winning of a football championship or the turning out of ten thousand motor trucks in record time—reaches its highest level.

The first two conditions are obvious. It is rare indeed that you find a factory organization which is ignorant of its own purpose or of the functions which it must perform. A plant whose management was uninformed or not clear on these two points would be headed with airplane speed straight toward bankruptcy. But you frequently find individuals in an organization who are ignorant on these points. Many a man has chafed at his failure to get ahead, has accused his employer of favoritism, or drifted into a hopeless routine existence, when the trouble lay in his own narrowed conception of his work. You will remember, referring back to Unit I, that it was his knowledge of the teamwork as a whole that won Miller rapid promotion in the automobile factory.

Frequent Causes of Poor Factory Teamwork

The other two conditions are commonly met with. Find a factory that is slipping behind in production, that is burdened with a heavy labor turnover, that is unable to keep up with its competitors, and in ninety-nine cases out of a hundred you will find that it is afflicted with some or all of the diseases listed under Conditions 3 and 4 in the page preceding.

Such a factory came under the observation of the writer a few years ago. The plant had good equipment, was turning out a good product, and its owners should have been realizing an excellent profit. There were orders on hand sufficient to keep the production going full tilt for at least twelve months. But something was radically wrong. Not only were the profits diminishing, but the workmen were becoming chronic kickers. There was constant complaint among them of being overworked or insufficiently paid, and the labor turnover was reaching alarming proportions. Finally the owners of the plant had a careful study made of the entire organization and working methods, and the root of the trouble was quickly uncovered.

It was found, for example, that when Jones, the general foreman, received instructions on a certain job or order, he passed the instructions on to Foreman Smith. Perhaps Smith already had a task on hand; or maybe for some reason he did not care to tackle the new job. So he told Brown, a fellow foreman, that Jones wanted Brown to do the job. In repeating the instructions, Smith would omit some of the details as Jones had outlined them, or perhaps the instructions became a bit twisted. At all events, Brown failed to get them accurately.

Responsibility Should be Clearly Defined

Of course it is evident what the result would be. Brown would do the job in accordance with faulty instructions and the work would have to be condemned. There was waste of material, of power, of machine time, and of the labor of Brown and his men, not to speak of the overhead expense. Who was to blame? Jones, or Smith, or Brown?

All of them, to a degree. But the chief fault lay in the loose organization which permitted such passing of a job from hand to hand. Had there been clearly defined lines of authority and clearly given and fully understood instructions, this bungle and its resulting waste could not have occurred.

The Man Should be Fitted to the Job

Another weak spot in this organization was its employment system—or, rather, the lack of a system. Every foreman and department head did his own hiring and firing and attended to the training of new men in his department, in addition to innumerable other tasks of supervision, report making, and the like. The result was not only the considerable expense which this duplication of effort cost, but the far more costly expense of misplaced and ill-adjusted workers. There were men on jobs in the factory who, when studied, showed that they were entirely out of place on those particular jobs, whereas they were fitted for other jobs on which other misfits were working. For example, men who lacked the patience and habits of exactness necessary to perform work calling for minute accuracy and precision, were found assigned to such work. Other men who possessed these needed qualities were in other departments doing work upon which their skill and thoroughness were wasted.

You can see what condition necessary to successful production work was being violated here. The organization had failed to group and assign functions so that "the man or men best fitted to perform a particular task were assigned to it."

The study and analysis of this organization at work suggested the necessary remedy. The owners got busy with pencil and paper, called into conference their various heads of departments, and there followed a season of planning and charting in which the whole organization from top to bottom was overhauled, the weak links in the connection strengthened, the unnecessary parts dropped, and the whole teamwork harnessed up in accordance with common-sense principles. The result can be easily imagined. The factory took a new lease on life, its production spurted ahead, and at last reports the workmen were earning a substantial bonus and the owners were well satisfied with their margin of profit.

Organization Should be Balanced

One frequent cause of hampered production lies in the failure of an organization to meet the fourth condition of successful teamwork. If the organization is imperfectly balanced, the production of the whole will be kept down to the level of the production of the weakest department within the whole. Unless each element entering into a product is ready to take its place in the manufacturing at exactly the time it is required, the rate of production must slow down, delivery must be delayed; and the inevitable result if such a practise becomes frequent, is decreased sales, lowered profits, and direct hardship to all concerned in the production.

Even so small a thing as a missing screw or a delayed bolt has been known to hold up a big job, and entail serious loss. The department or workman responsible for getting that small part to the machine failed to meet expectations, and as a result the production was held back and a promised delivery failed of fulfilment. Not only the departments concerned in processing the products, but those other departments which may be considered as of a contributory nature—such as the purchasing department or the shipping department—have their responsibility in this connection also. The purchasing department must not let production be hampered by its tardiness in procuring a needed material or tool, no matter how small or seemingly incidental the needed article may be. The shipping department must not allow a fine manufacturing record to be spoiled by its failure to get the goods packed and onto the shipping platform and into the car on schedule time.

The more serious aspect of this difficulty appears in the case of production which is

When One Department Lags Behind

carried on through two or more dependent and cooperating departments. If one department is way ahead of the others, the teamwork is bound to slacken and costs will mount up. In the case of a factory which manufactures machinery, for example, there are four departments which are directly occupied with the tasks of changing raw material into the finished product. There is the foundry, the forge shop, the pattern shop, and the machine shop. Suppose the foundry turns out its work faster than the forge shop can complete its process. Pretty soon you will find that the foundry has to be slowed down, some men laid off perhaps, and some of its machinery left idle waiting for the forge shop to catch up with the procession. Or suppose the machine shop is so well organized and manned that it shoots ahead of the other departments. Soon it will be calling for parts faster than the foundry and the forge shop can turn them out. Then the machine shop will have to be run part time, or perhaps shut down for a while—all because the organization of the plant is not evenly balanced.

Such a situation as this runs up costs in a hurry. The money invested in the machinery which lies idle is bringing in no return, and the same thing is true of the money invested in the material whose finishing is delayed. Every delay, every additional day or hour spent in getting out a product, increases the production cost and so holds down the margin of profit.

Meeting this problem involves not only a correctly balanced organization, but also close relations between the cooperating departments. It is necessary at all times for the foremen to work in close harmony with one another. Each should know what the other is doing, and what his shop or departmental production is in relation to that of his fellow foremen.

The Use of Progress Charts

One way of keeping tabs on the production of several departments is the use of progress charts. These are simply graphic records of the production standing of each department, and by making them comparative it is possible to show at a glance how the production of each department compares with that of its cooperating departments.

A simple form of progress chart is illustrated in Figure 1 on the opposite page. It shows the progress of production for a certain article which is made of eight parts, and the purpose of the chart is to show the present standing of production of each part. Thus, by referring to the blocked-in space opposite each part-number we see that there

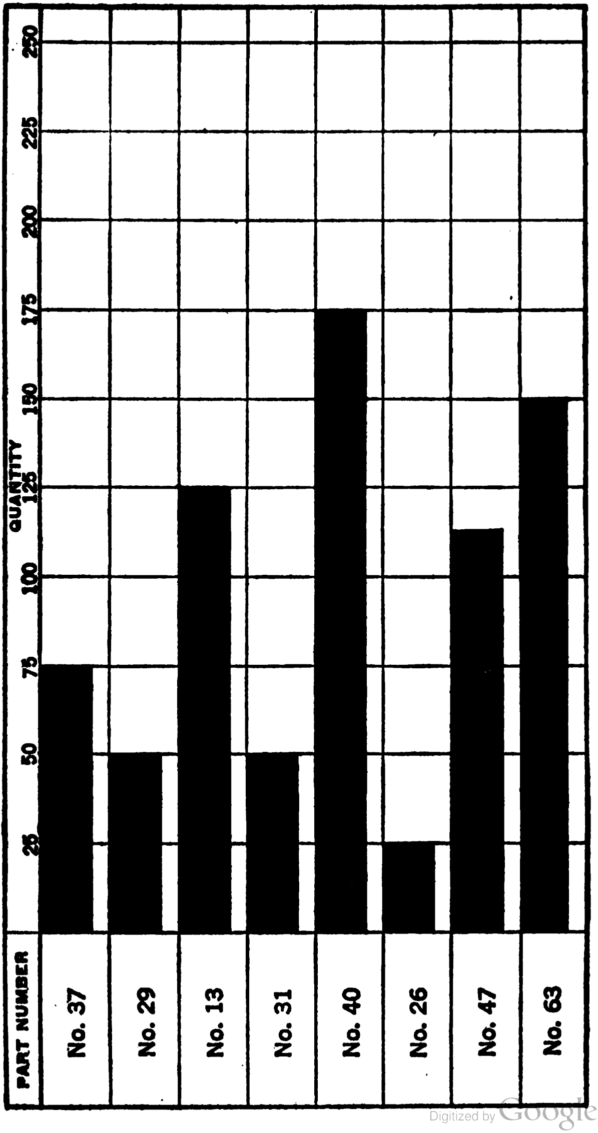


FIG. 1.—Progress Chart

are in stock 75 of Part No. 37, 50 of Part No. 29, 125 of Part No. 13, and so on. In the final assembling of these parts to make the finished products, each finished article requires two of No. 37 to one of No. 29. Therefore, the production of No. 37 should be double that of No. 29. The chart shows at a glance that the quantity of No. 37 is not double that of No. 29, and gives immediate warning that the department making No. 37 must speed up until its production is on a basis of 100 parts to compare with a No. 29 production of 50 parts. And so with the other items shown. Each finished unit requires four of No. 40, which means on the basis we have mentioned a production of 200. The chart shows that the production stands at 175, and therefore sounds a warning that the foreman responsible for No. 40 must increase his rate of production by 25. A large chart of this kind in plain sight will show everybody just where the production stands, and furnishes a valuable object lesson to department executives and workmen alike.

Progress Chart for a Department

Figure 2 on the opposite page is the progress chart of a single department. The form in the lower rectangle enables the department to compare its day-by-day record, the blocked-in space opposite each date showing the output of the department for that day. Thus,

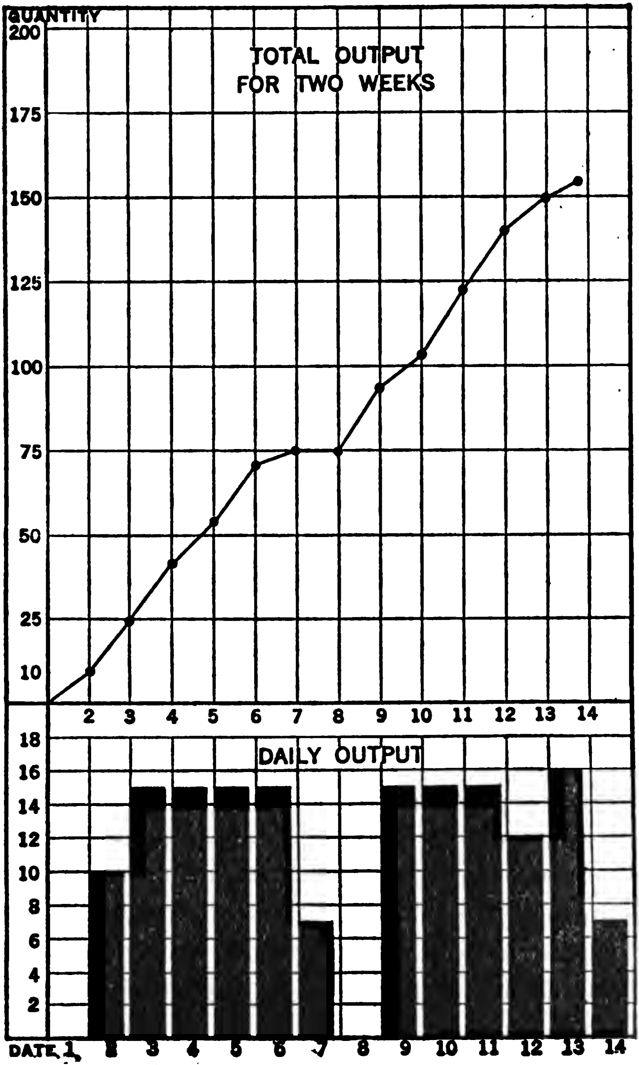


FIG. 2.—Progress Chart for Department

there was no production on the 1st, that being Sunday; the production on the 2nd was 10 parts, on the 3rd, 4th, 5th, and 6th it reached 15 again, and on Saturday was only 7 parts.

The upper rectangle shows by means of a plotted curve the total production for the month as it mounted up day by day. Thus the total production by the 2nd was 10, by the 3rd, 25, by the 4th, 40, and so on. The curve is simply a totaling of the figures shown in the lower rectangle. If the production was the same day by day the curve would be a straight diagonal line. Its fluctuations indicate the daily fluctuations in production.

These and similar graphic methods of showing records may be used for any kind of production. We have spoken of production in terms of parts. In a textile mill the measurement would be in terms of yards woven, in a paint factory in terms of gallons or barrels of paint produced, in a paper mill the unit would be pounds or tons of paper. Some factories post up the production records on the bulletin board. In the plant of the Ford Motor Company the production of each department is shown on the bulletin board every hour.

Sometimes a foreman or department manager is ambitious to make a record for his department, and speeds its production ahead regardless of the plant as a whole. Sometimes he gains the same result not by speeding up, but by withholding necessary information from some other department and thus retarding its progress. When a man in an organization adopts these tactics, it is best to make a change at once. Friendly rivalry is a good thing and a healthy one, but competition must never be allowed to defeat the end toward which the whole teamwork is directed.

Committees and Conferences

Many factories find that a regular conference between foremen and heads of departments guards against such evils and promotes a better understanding among all concerned. In some plants, committees are formed to give permanent shape to such conferences, and these committees have proved valuable in promoting human relations within the factory as well as in increasing the efficiency of work. In some of the most successful factories using the committee system chosen representatives of the workers sit with the foremen. Meetings of this kind give an excellent opportunity to point out in a friendly way mistakes to be avoided and new methods to be adopted. They also reduce friction between men and between departments; grievances are aired in committee and disposed of before they grow to unmanageable proportions through secret brooding.

The plan of having a foreman's meeting every morning is used in some factories. It has been found especially helpful in those plants which do not have a planning department. At the meeting, each foreman reports on the state of his department. If any department is behind, the foreman has an opportunity to explain the failure. If a new job is just starting, each foreman gives a date when the production may be expected from his department and the superintendent is then able to combine their estimates.

Premiums as an Aid to Group Production

Premiums or bonus payments are occasionally used to good advantage in encouraging production by making the bonus depend upon the output of the group or department rather than of the individual. When a gang or department wins a bonus the money is divided among its men. In this way each man is encouraged to help the other in order to secure team production, which is what counts. Similarly, foremen are sometimes paid premiums for the production of their department as a whole. This makes it an object for the foreman to study his group as a producing unit and to have the best men help those who fall behind. It also makes him careful to weed out the shirkers or inefficient members.

Thus, the problem of the organizer is more than one of analysis and charting. After functions have been determined and assigned, after the departments have been properly related and their teamwork adjusted, there remains the problem of keeping right the human relations within each department and between departments. The organization must be such that it will keep down friction, and it should maintain as nearly as possible perfect balance and flow of power in utilizing the human resources of the factory as well as in utilizing the mechanical resources.

The organization at work—if it is the right kind of organization—has a care for all these factors: mechanical, material, and human. It keeps in view always the main purpose of the business—production at a profit. Charts, layouts, committee conferences, bonus systems, personnel managers, apprentice schools, plant restaurants, hospitals, clubhouses, and athletic fields, are simply instruments toward that end, as succeeding chapters of this Unit will show.

III

Forming the Factory Team

THE organization is a living thing. Sometimes it is expressed in material terms. We speak of the billion-dollar United States Steel organization, the 175,000-spindle Arlington Mills, the 900-acre Hog Island shipbuilding plant. But the idea underlying these descriptions is that of the man-power required by a billion dollar manufacturing enterprise, or a textile mill of 175,000 spindles, or nine hundred acres of shipbuilding activity. The organization is essentially human. It is a team. Building the organization really means forming the factory team.

Steps in Forming the Factory Team

Two elements enter into teamwork—leadership and cooperation. Whether you are forming a baseball nine, an army corps, or a factory force, your organization will be weak and ineffective unless it has trained leadership and loyal, efficient cooperation. You must get men, you must get the right sort of men, and you must in each case suit the man to the job. In logical order, the steps in the process are:

1. Selecting workers.
2. Fitting workers to jobs.
3. Training leaders.

Under the stress of wartime conditions, selecting workers has become largely a problem of finding workers. The withdrawal of millions of men from industrial life has caused a shortage of man power which has been felt by practically every factory in the United States. At the same time there has been a speeding up of production in all the essential industries, and this demand for larger output may be expected for many years to come. In fact, war has so wasted and destroyed the world's capital, that the period of reconstruction and rehabilitation immediately following the war promises to be an era of unparalleled industrial activity.

Skilled and Unskilled Labor

The labor required in industry is roughly classified under two headings—skilled and unskilled. All rough heavy work whose main requirement is muscle power is grouped together as unskilled labor. The ditch digger, the floor sweeper, the water boy, and the coal heaver are unskilled workers. And not only heavy work, but other kinds of labor which require little actual brainwork on the part of the part of the worker. An automatic machine usually has a watcher or attendant, but that attendant need not have much skill. Since skill means facility in work, a man may become skilled even in unskilled work. He may be a skilled ditch digger, a skilled sweeper or coal heaver. James A. Farrell, whose beginning as a day laborer was described in the first Unit of this course, became a skilled day laborer before he climbed ahead to a bigger job. It is well to remember the possibilities of skill even in the men who are doing crude muscle work or unskilled routine, and to look out for it and encourage it.

The other grouping includes such workers as supervisors, designers, artisans, craftsmen, and operatives. Brainwork and skill are necessary elements in their labor, though here again the differences may vary widely between two workers or between the requirements for two jobs. It requires less skill, for example, to operate a turret lathe than to repair that machine tool when it breaks down. It requires more skill in the assembly of an automobile than in the operation of the press which stamps out the fenders, or in the operation of the paint spray which gives the car bodies their glossy coat of enamel. All these differences in requirements must be borne in mind in finding and selecting workers to form the factory team.

The task of finding and selecting workers varies with the location of the plant, the hours, wages, and conditions of labor, and other circumstances peculiar to the industry.

How Location Affects the Labor Problem

Plants located in large cities have the advantage of (1) a large labor market, (2) adequate housing facilities, (3) convenient transportation service. In normal times, they frequently do not have to advertise for labor. Applicants are applying for jobs almost every day, and the task is simply one of selecting. This is frequently made difficult, however, by the strong competition of other plants in the community and the increased inducements offered by recruiters. Large industrial centers are also infested by radicals or malcontents whose agitation may cause high labor turnover with resulting loss both to employers and employees.

Plants which occupy a small-town location have of course a smaller source of supply to draw their workers from, but once organized, manned, and established they are less likely to have changes than the city plant where competition for labor is keen. Frequently such plants find it necessary to recruit their force from outside places and bring the workers in and establish them in homes. Sometimes the factory builds houses and sells or rents them to the workmen—the selling system being preferable if a permanent force is desired.

Isolated plants, country plants, factories located in an undeveloped region have all these difficulties of the small-town factory multiplied many times. Sometimes a whole town has to be built. This was the case when the United States Steel Corporation decided to establish a great steel manufacturing plant near Lake Michigan and selected an open stretch of undeveloped country in northern Illinois. It bought the land, it laid out and actually built the town of Gary—streets, public buildings, schools, dwelling houses. In some cases, of course, lots were sold and individuals built their own houses, but it was the industry itself that promoted and carried through the whole community development.

Transportation Facilities as a Factor

Lack of transportation facilities frequently handicaps the isolated plant in getting and keeping labor. Many of the munitions plants and other war industries have experienced this difficulty. Some factories have found it necessary to establish bus lines or a jitney service, where the housing facilities of the neighborhood were limited and workers had to travel several miles a day to and from work. But when an isolated factory has built up its own community and is thoroughly established, it becomes independent of transportation service and (in normal times) of competition in labor recruiting. Its problems of finding and keeping labor are then much simpler than those of the city factory. Its community is a little world in itself, everybody at work, contented, prosperous.

Unskilled labor is of course easier to get than skilled, since it is more abundant; and in ordinary times the competition for it is not so keen. The stress of war conditions has created a shortage in every kind of labor, most of all in the highly skilled trades, but also to a degree in the unskilled field. To make up for this lack of man-power, modern factories have resorted to two expedients:

1. Greater use of mechanical devices for lifting, carrying, and performing other tasks heretofore performed by muscle-labor.
2. The use of women to take the place of men.

Making Machinery Do its Part

The first of these remedies introduces no new element into industry. It simply makes more general use of mechanical principles as they are applied in traveling conveyors, gravity devices, automatic machinery, and the like. Many labor saving devices which were in only limited use a few years ago, have become widely employed under the far-reaching pressure of wartime demands. Greater use of mechanical power in place of muscle power aids the work of forming the factory team by releasing from purely muscular or other unskilled labor many who can be trained for the more important tasks that require brains and skill. Frequently, with very little instruction and supervision such workers can be made extremely valuable operatives.

Bringing Women into the Factory Team

Mention has already been made in Unit II of the increasing use of women in industry. While this is incidental to the man shortage caused by the war, there is good reason to believe that in many lines women will continue to be a factor in industry after the war. In many cases they have demonstrated exceptional fitness for the work. Moreover, the great era of production which will follow the war will require the use of every available worker.

Within a fortnight after the American declaration of war against Germany, an organization of industrial executives in Detroit began an inquiry to determine where and how women workers might be used in the industries of that city. They found that averaging all the plants visited, it was possible to replace 20 per cent of the men with women. Even in a large axle-making plant, where the manufacturing involved heavy metal-working labor, a 10 per cent substitution was easily indicated. One plant making office appliances was found to be an ideal industry for using women workers; and 80 per cent substitution was possible here.

Twenty per cent of the factory work in the great plant of the Goodyear Tire & Rubber Company in Akron, Ohio, is done by women. More than 4,600 men left that company to enter the national service, and in the fall of 1918 the number of women workers who had been taken on totaled nearly 3,000. Among the tasks performed by women workers in this plant are: finishing tires, cutting and splicing fabric for balloons, weighing rubber, moulding and trimming rubber heels, operating electrical trucks, making gas masks, operating refining and straining machines in reclaiming rubber, running rubber washing-machines, splicing and trimming tire tread-bands, making tubes, separating sheets of rubber.

Almost the entire force of the Brown & Sharpe Manufacturing Company, Provi-

Women Well Adapted for Lighter Classes of Work

dence, R. I., engaged in making micrometers, are women; and it is in such delicate work as this, requiring lightness of touch, that women seem especially successful. Women are employed in the manufacturing departments of the Recording and Computing Machine Company of Dayton, the Cumming Machine Works of Boston, and in numerous shell-making, shell-loading, and other munitions plants. American women by the thousands are today successfully operating turret lathes, milling, grinding and turning machines.

"Women are not nearly such fragile creatures as the average man in America is wont to believe," writes Harry F. Porter in *Industrial Management.* "Nor is factory work, as it is now carried on in most American establishments, nearly so heavy and arduous as is the prevailing opinion of the non-industrialist. As a matter of fact, there are few jobs in the factory more taxing on the strength and endurance than the tasks about the kitchen and house which our housewives perform day in and day out without murmur. On the contrary they thrive on it, while those who through the possession of wealth are relieved of the necessity of toil are forever in search of health-cures.

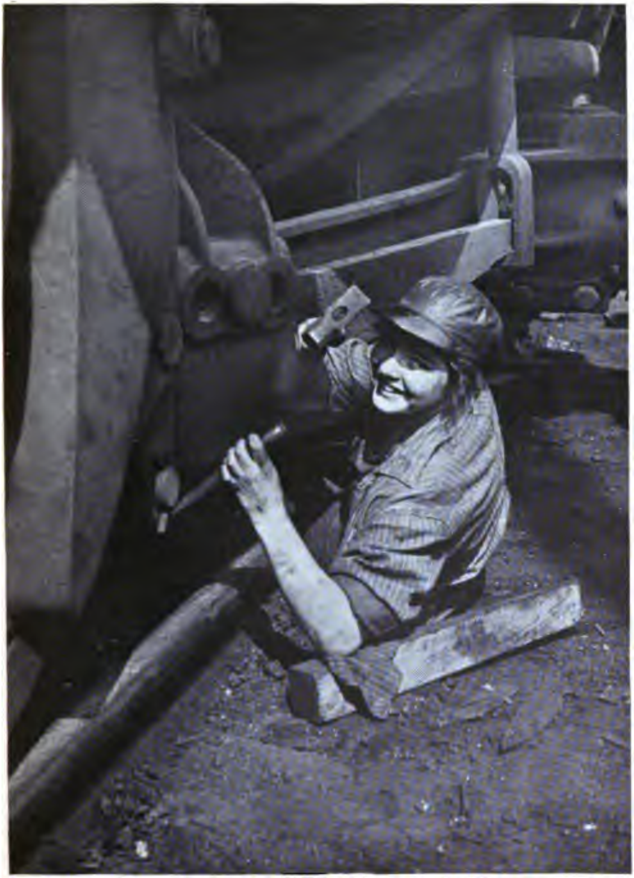
"It seems the part of wisdom, however, if women must be used in our industries to draw on them at first for only the lighter classes of work. Every factory has its proportion of production and time clerks, stockroom attendants, sweepers and cleaners, inspectors, counters, and sorters. All this is not only light work but such as requires little previous training. Women also make ideal operatives on light and bench assembling. Next are the lighter machine operations, particularly drilling, punching, and automatic machine work of all kinds. In the operation of light punch presses, as several Detroit factories have already found out, they are far superior to their brothers. It is perfectly amazing the way their quick eyes and deft fingers can keep up with the trip of the fastest running presses."

When women are taken into an organization, special facilities are required for their welfare and convenience. Few plants that heretofore have employed men exclusively in the manufacturing department are adapted offhand to the substitution of women. Rest rooms have been found practically a necessity. Some factories have separate entrances for women, and separate workshops. Others, where this is impracticable, allow women employees to report for work fifteen minutes later than men and to leave fifteen minutes earlier, and have both a man and woman supervisor stationed in the mixed departments. Seats are provided wherever possible to avoid injury to women from standing all day at their work.

Fitting the Worker to the Job

The problem of fitting workers to jobs shows up strikingly when the labor to be used is that of women. It is apparent at a glance that women cannot be put into every kind of work. Even when the work is such that they are physically adapted to it, certain preliminary training and instruction is necessary. The same thing is true of practically all jobs and of all workers, both men and women. Forming the factory team goes beyond merely finding and selecting the workers. It involves also fitting the worker to the job; and that includes careful study both of the job and the worker, and such training as will most quickly transform the new employee into a producer.

Remarkable results in rapid training of green men for factory work have been achieved by many American plants during the past two years. When the American Brake Shoe Company established its large munitions plant at Erie, Pennsylvania, it had to build up an entirely new organization to man the establishment. Experienced machinists and operatives were not to be had in



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WOMEN ARE EMPLOYED IN RAILROAD MACHINE SHOPS IN NEW JERSEY

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the numbers required, so the company hired a large force of men from the surrounding countryside, some of them farm laborers and village store clerks, split up the complex manufacturing operations into a few simple ones, divided the force into small groups, and put each group in charge of an experienced instruction man. Then it carried on a few weeks of intensive training. In an amazingly short time the green men were expert factory men, and the plant was operating at full capacity. Officials of the company have said that the very inexperience of the learners was one reason for their rapid progress. It was possible to teach them the exact methods of the shop without encountering interruption and opposition due to methods learned in other shops. In other words, the training process was all straightforward instruction; there was nothing to "unlearn."

A Training System that Looks Ahead

John Spence, superintendent of the Norton Grinding Company, Worcester, Massachusetts, has established a preliminary training system which looks beyond the immediate present and seeks to keep up a steady stream of workers for his factory team. It is not exactly of the "vestibule" type, and its object is to train a man in the fundamentals of shop work rather than to make him an operator of a particular machine. It really constitutes an intensive apprenticeship, though the training requires only eight weeks whereas the old apprentice system involved four years.

Realizing the impossibility of securing men with previous shop training and seeing the need of developing thousands of men for future industrial needs, Mr. Spence throws the doors of his school open to any likely appearing men or boys over sixteen years old; beyond this he has set no age limit, requiring only sound physique, a mind that can learn, and good character. The training is carried on in a small shop set apart from the main works, and here the new men learn the actual processes of the Norton Company's manufacturing. They learn how to run the engine lathe, the drilling machine, milling machines of various types, grinding machines, and the other machine tools. They are taught how to fit parts together after they have been machined. At the end of eight weeks in this instruction shop, a man is prepared to go into any of the workshops of the company and do productive work.

As a result of this system there is a constant stream of new and partly trained operatives flowing into the factory who can be assigned to the department where they are most needed. They are not yet skilled mechanics, but they have an excellent foundation on which to build, and they require only experience and the guidance of a good foreman to make thorough workmen. The flexibility of such an incoming force is in itself a distinct advantage. It is interesting, moreover, to notice the varied walks of life from which these new mechanics come. In a recent class of forty, there were former butchers, dry-goods clerks, teamsters, and a former corset designer.

Men who are thoroughly grounded in general production work, or who become extremely expert on some particular machine, are frequently used as instructors. In shops where this plan has been used, production has been increased and the men, including the instructors, have been enabled to earn more than before. In one instance, a particularly efficient planer man was made instructor for all planer hands in the shop. As he had always drawn the fattest pay envelope, the men were glad of the opportunity to learn the "kinks" and short-cuts of his working methods.

Fitting workers into jobs is not altogether a matter of instruction, however. Frequently the man taken on is already skilled in his trade. Here it is important to consider his previous experience, and to assign him

Making Use of Experience and Skill

to work that will duplicate—or, at least, closely approximate—the type of work with which he is most familiar. When you are dealing with a man who is a specialist on some machine or in some manufacturing process, he can obviously make a better output if assigned to that machine or kind of work than if switched off on some other kind of job. Such a comment may seem unnecessary, but the number of men who call themselves all-round mechanics, and who are really specialists in one or two fields, is remarkably large. It is best to test a new man thoroughly, and assign him where he will count most in the teamwork.

Moreover, personal traits and habits must be taken into consideration. The nervous high-strung individual is usually better on rapid machine work than the slow-but-sure operative who has a tendency to extreme precision and exactness in work. Put the latter man on jobs calling for great thoroughness. The baseball trainer or the football coach studies the type of mind of each of his men, and assigns him to a place in the team accordingly. The personnel department of the United States Army considers the mental traits and faculties of the officers and men, as well as their previous experience, and guided by this knowledge is able to put each man where he can render the most valuable service. In forming the factory team, the same principle operates. The foreman or other leader who follows it will get the most successful results.

Training Leaders for the Factory Team

Finally, the factory organization requires leadership. The third step in forming the factory team, as listed on page 35, is *training leaders*. As the organization grows, men are continually moving ahead from small executive positions to larger ones, and there is always a demand for those who can take these places. Moreover, new shops or departments develop as the plant grows, and foremen are needed to take charge of them. In a going concern the need for leaders, or executives, is scarcely ever fully satisfied.

Most plants prefer to fill executive positions from within their own organization, rather than to go to some outside concern and bring in a stranger. It may safely be said that when a factory goes outside to fill a foremanship, it does so against its preference and only because the men in the force have failed to see their opportunity and to qualify for such a job. Many factories do not leave it to the initiative of the workmen solely, but provide courses of training in the all-round work of the factory, in handling men, in supervision, and in the general work of foremanship.

Making Promotion Easy

A good working system of training men for executive work is what is called the "understudy system." In this system, each man who has a responsible position of supervision or authority is required to select an assistant. This assistant becomes his understudy, learns his ways of doing things, absorbs technical knowledge and the knack of leadership, and so is constantly gaining practical experience in the work. Then, when a foreman or other shop executive is promoted to a higher position, there is somebody who knows the job and who can step into it without a day's delay in finding and breaking in a new man. Such a system as this makes promotion easy. Many a man is kept in his old job simply because the job is indispensable and there is nobody else who can be switched into it. One factory which has this system frankly tells its foremen: "Train an understudy if you want to be promoted."

Stone & Webster, the Boston engineering firm which builds and operates public service plants in various parts of the United States, uses this system. "Every man in our organization," says Charles A. Stone of the firm, "must train an alternate. Thus promotions cannot disrupt our organization. Occasionally, but rarely, we encounter selfishness in carrying out our policy. Some fellows are afraid to organize themselves out of a job. They fear that if somebody at their elbow is capable of filling their shoes, their place will not be secure. This, of course, is a narrow view. We convince each man that we want to promote him, but it will be difficult to do so unless he has paved the way by training a subordinate to step into his place."

Intelligent direction is the secret of building a successful organization. The factory team is developed—not through haphazard growth—but through careful planning and guidance. Thought is given to the selection of the workers; attention is given to fitting them where they will do the most productive work; pains are taken to train men for leadership. A factory team formed in this way is not something that "just growed," but is a balanced, smooth-running, efficient production machine. Every part of it is essential, every part is in the right place.

IV

Holding the Team Together

THERE is more to this problem of organization than simply forming the team. When the team has been brought together, it must be kept together. An organization that is constantly changing in personnel cannot do the best teamwork, and its leaders must continually spend a large part of their time recruiting and rebuilding the organization.

Excessive Labor Turnover

One of the largest motor companies in Detroit took on 54,000 men in a year to keep its working force at an average strength of 13,000. A steel mill which required a force of 8,000 men, had to hire 26,000 during the year to make up for those who quit, who were retired, or who had to be discharged. In another factory 40,000 men passed annually through the works in order to maintain an average force of 20,000. A certain foundry working 1200 men hired actually 14,000 in a year—an average length of service for each employee of only thirty days.

These figures, which are selected at random from representative industries, reveal a state of affairs which up to a few years ago received scant attention at the hands of foremen and other executives. Once in a while a foreman would total up the number of men taken on during the year, and the bigness of the figure might surprise him. It interested him, perhaps, to think that he had hired so many men. Beyond that he usually gave it little thought. The general attitude was: "If men are dissatisfied or are unsatisfactory, let them go; and hire new workers in their places. You can't waste time making men over."

It goes without saying that this is not the attitude today. Even if labor were plentiful, modern factories would fight shy of such a policy, and no foreman who held such an attitude would be trusted with the delicate function of employing and discharging men. The reason for this change is not sentimental. It is a solid business reason—the most businesslike reason in the world, namely *cost*. Excessive labor turnover is one of the most expensive extras in the list of factory costs.

Labor turnover is the common expression referring to hiring and firing. As used in in-

How to Figure Labor Turnover

dustry, it means the proportion of persons hired within a given period to the number required to keep a plant adequately manned. Thus, if a factory force consists of 1000 workers, and the factory has to hire 1000 hands during the year to keep its departments full, its annual labor turnover is 100 per cent; if it has to hire 2000, its turnover is 200 per cent; if its number of withdrawals is so small that only 250 new hands are taken on in the year, its turnover is 25 per cent. The latter figure is extremely low, and few factories attain it. The average labor turnover for all the industries of the United States has been estimated as 125 per cent.

With the growth of competition among industries, and the decreased margin of profit which resulted from close sales rivalry, factory men began to study their organization plans and operating methods with a view to cutting off wastes and reducing production costs. It was not long before they looked into the figures of labor turnover; and when these were reckoned in terms of the cost of hiring and training new men, the money leakage from this one source alone was shown to be enormous.

One manufacturing concern found that it cost the company not less than $96,000 a year to break in new men. This was more than the total net profits of the business. A saving of even half the labor turnover would have permitted a substantial increase in the wage rate, something which the management had been trying to do for years.

High Cost of Labor Turnover

Recently a number of leading industries have investigated their costs of hiring and breaking in new men, and some interesting detailed figures on this subject have been compiled. One Philadelphia machine shop found that to bring in a new man and place him in a semi-skilled position in one of its departments cost the firm $67.40. M. W. Alexander, of the General Electric Company, who made a survey of a great many industries on this subject, gives the cost as high in some cases as $200 per man hired. W. A. Grieves, of the Detroit Executives' Club, who made a similar inquiry, says the minimum cost is $40 per man. A large plow and implement factory in the Middle West places the cost of breaking in a new foreman at $1000.

It is easy to see from these figures why a heavy labor turnover is an extra burden on the production department. Taking Mr. Grieves' minimum of $40 per man, it cost the automobile factory mentioned in the second paragraph of this chapter $2,160,000 to break in the 54,000 men whom it hired that year. It is violating no confidence to say that the company is the Ford Motor Company, and that those figures, showing a labor turnover of more than 400 per cent, were for the year ending October, 1913. Since then the Ford Company has inaugurated its profit-sharing system, improved its employment methods, and established other features intended to hold its team together, and as a result the labor turnover the following year was only 23 per cent.

Three Types of Labor Turnover

A certain amount of labor turnover is inevitable. Death, disease, old age and unpreventable causes are constantly removing men from active industry, and of course the factory which loses them must hire new workers to fill their places. But the turnover due to these causes is only a small percentage of the total. By far the great majority of those whose places must be filled may be grouped in these three classes:

1. Men who are discharged.
2. Men who are temporarily laid off, and later, when they are wanted, have got new jobs and so are not available.
3. Men who quit voluntarily.

Every trained man lost through any one of these reasons represents an actual loss to the business, and his replacement means an extra expense on the business. (1) His departure is a loss (*a*) because it means a break in the team and therefore an interruption of its teamwork, and (*b*) because of the actual money outlay which the company has invested in his training and development. (2) His replacement is an expense (*a*) because of the cost of finding and selecting a new man, (*b*) because of the cost of breaking-in and training the new man, (*c*) because of the spoilage of material or the damage to equipment which is usually involved in the breaking-in process, (*d*) because of the decreased production due to a green or inexperienced hand. Each of these items figures in the high cost of hiring and firing, and they make labor turnover one of the most expensive luxuries of the factory.

The Men Who Are Fired

Men who are taken on a force, broken into its working methods, made a part of its team, and after a few weeks or months discharged, are really the failures of the employing and training agencies of the shop. They are the misfits who should never have been taken on in the first place. The foreman or other executive who hired them and then failed to fit them effectively into the organization should consider himself personally responsible for their fall-down. For it is a fall-down not only to the company, but also to the men who are thus branded with a black-spot in their labor record.

Sometimes a man develops a bad streak after months or even years of loyal and efficient service, and of course such cases can hardly be blamed upon the man who selected them. Tactful but firm and fair handling may work a salvation even in these cases, and so save the drain of more hiring and firing. But usually the "bad" man can be spotted in advance, if the foreman or employment man has any insight or real ability in reading human nature. The same comment applies to the applicant who is dull-witted, physically unfit, or otherwise incapable of doing good work. The most effective remedy for frequent firing is more careful and expert hiring —a subject which will be dealt with in considerable detail in the chapter immediately following.

The Men Who Are Laid Off

Temporary laying off of men is the second source of labor turnover. This is not always a matter in the control of the foremen, but very frequently it is. Often, through lack of proper planning or organizing on paper, a department head will overstate his labor requirements. Men are hired in accordance with this requisition, and as a result some of the operations will be finished ahead of the expected time, the department will have to slacken down to allow other parts of the production to catch up with it, and this means that men must be laid off. It is inevitable, under the circumstances, that they be laid off, for usually such men are specialists in some particular operation or upon some machine; they can't be kept idle, and the hard-worked foreman has no time to try to fit such men to new specialties. The results are somewhat similar when the foremen underestimates his labor requirements. Then extra men have to be rushed in at the eleventh hour, frequently at extra expense in finding and hiring, only to be discharged as soon as the pressure lets up.

The remedy for this sort of abuse and waste is careful planning of work to make it more continuous and steady—less subject to spurts and dull seasons—and also careful planning of labor requirements. "One Detroit employment manager told me," said Boyd Fisher, "that his foremen were astonished when he analyzed their labor requisitions, showing them how frequently they discharged and then wildly besought men on high-priced operations. Of course, lack of a centralized scheduling system was largely responsible."

The Men Who Quit

A variety of causes figure in the labor turnover which results from voluntary quitting. Here you are dealing with human nature both in the group and in the individual, and in its many ramifications—self-interest, likes and dislikes, prejudices, sensitiveness to criticism, and the like, as well as with physical factors, such as plant location, community life, family ties, the prospect of a better job elsewhere, labor recruiters, and agitators.

Dissatisfaction with wages, hours of labor, and working conditions in the shop are the most frequent reasons given for quitting. Sometimes the real reason is ignorance of the wage system, or a misunderstanding of rules or requirements. Sympathetic understanding on the part of the foremen coupled with a tactful effort to explain the situation to the men will often dissipate this ignorance and convert a dissatisfied employee into a loyal team worker. Frequently a man will kick for a raise and threaten to leave for higher wages to be had at some remote plant, little thinking of the expense of a move, the isolation of the new plant, or its congested housing conditions and impoverished community life. In such cases it is the duty of his foreman to call his attention to these facts, and make him realize that five dollars a week more wages may be more than offset by the extra expense and inconvenience involved in the new job.

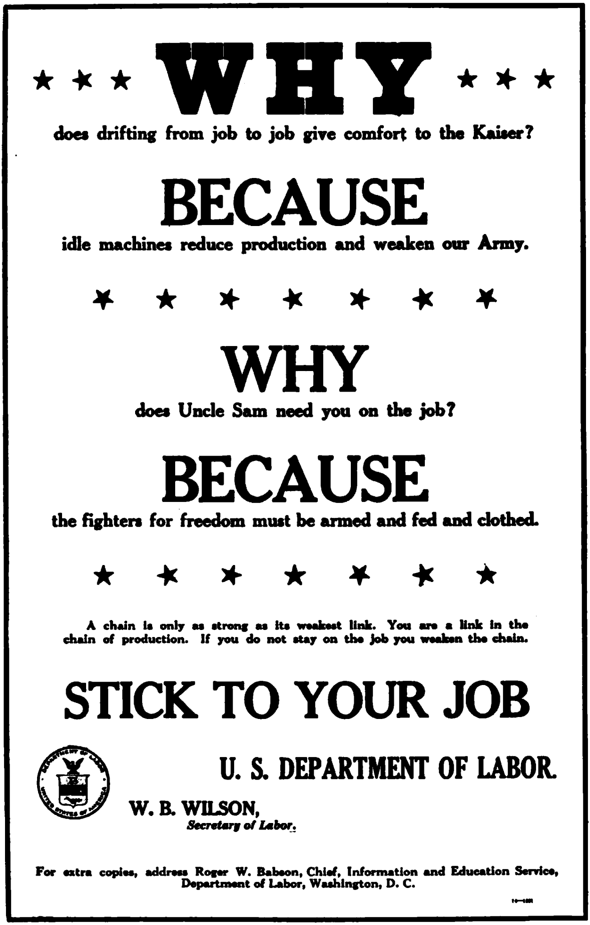
Unfair treatment on the part of foremen, favoritism, and anything bordering on assumed superiority, will do much toward driving men to other shops. Foolish rules and petty annoyances also play their part in increasing labor turnover. The policy of designating men and women by numbers and calling them by numbers only, is offensive to many self-respecting workmen. While it may be necessary to use a number as a check on the name, it is a mistake to let that be the only designation. The foreman at least should know his men by some name, whether he gets the exact pronunciation or not.

Saving Job-Suicides

Some men quit because the foremen or fellow workmen are of a different race or religion from their own, and their prejudice smoulders until something sets it off and they quit with a grudge. Workmen who are illiterate or narrow are the chief victims of agitators. They are often highly sensitive to trivial or supposed wrongs, or to fancied oppression by "capital." Here again the remedy lies in the hands of the foremen and associates in the shop. By tact and friendliness and good counsel they can frequently overcome such an attitude and not only help the plant to reduce its labor turnover but also help these men to become better workmen and better wage-earners. To save men from "job-suicide" is a real service which every good foreman takes a pride in having in his record.

The monotony of some employment is another reason for labor turnover in some of our big shops. When a man drills the same size hole in the same size piece and on the same machine eight or ten hours a day, week after week, it becomes monotonous unless he is of a very phlegmatic disposition. The job get on his nerve and the time comes when he demands a change. Sometimes he goes on a spree but more often he quits and gets another job. It may be a similar job but it will be a different size of hole and in a different kind of piece even if it is on the same kind of machine, and he can stand it for a time in any event.

Some advanced managers are trying the plan of shifting workers in monotonous jobs to some other part of the factory and on different kinds of work. This shifting requires training in two or more branches of the business and in this way may somewhat decrease production during the learning period. However, this is more than offset by the decrease of labor turnover and the fact that it develops



★ ★ ★ **WHY** ★ ★ ★

does drifting from job to job give comfort to the Kaiser?

BECAUSE

idle machines reduce production and weaken our Army.

★ ★ ★ ★ ★ ★ ★

WHY

does Uncle Sam need you on the job?

BECAUSE

the fighters for freedom must be armed and fed and clothed.

★ ★ ★ ★ ★ ★ ★

A chain is only as strong as its weakest link. You are a link in the chain of production. If you do not stay on the job you weaken the chain.

STICK TO YOUR JOB

U. S. DEPARTMENT OF LABOR.

W. B. WILSON,
Secretary of Labor.

For extra copies, address Roger W. Babson, Chief, Information and Education Service, Department of Labor, Washington, D. C.

THIS GOVERNMENT POSTER APPEALS NOT ONLY TO LOYALTY BUT ALSO TO SOUND COMMON-SENSE

a more mobile force which can be shifted to take care of an unusual demand for an increased force by any one department. This also gives the employee a broader grasp of the trade and more self-confidence.

On the other hand, some men are natural-born travelers. They are literally "journeymen," and no amount of extra inducement will hold them beyond the time when the wanderlust demands a change. A man's record of past employment will show whether he is of this type, and then it is simply a matter of deciding with your eyes open whether to take him on or not.

Outside Factors Which Affect Labor Turnover

Physical factors such as plant location, conveniences for eating, for recreation and for other social activities, transportation service to and from work, housing accommodations, the presence or absence of schools, churches, theatres, and amusements, all operate in this problem of labor turnover. Home and family influences are also very strong and determining factors in some cases. The presence of relatives in a distant place may attract a workman there; or a wife's dissatisfaction with the town in which he is employed may cause the husband to throw up his job and move.

To offset these causes, as well as to stimulate greater efficiency among their men, many modern industries have branched out into various welfare and community work and directly supplied educational and social facilities, amusements, and other advantages. More than that—and this is something which is possible to the smallest plant as well as to the factory of ten thousand workers—modern industry is constantly seeking to interest its men directly in their work. Football, baseball, any of the sports are deadly dull if their rules and principles are unknown to you; and these things cease to be sport, and become merely work, the moment you let them drop into a monotonous routine. To do a thing well, you must be interested in it. To stick to a job and make it a go, you must have a live interest in your job.

So the modern factory—and the modern foremen in that factory—is more and more taking the workers into its confidence, showing them the "why" of the work as well as the "how" of it, emphasizing the essential part which the individual plays in the whole production process, and seeking in every way to make the job a live, interesting, stimulating undertaking to the man who holds it. Some of the steel mills use moving pictures to tell the men the story of steel, from the iron ore to the finished locomotive, battleship, or great bridge girder. Aircraft factories have stimulated the interest of their workmen by showing moving pictures of the airplane, from raw material through the various manufacturing processes to its actual use on the battle line in France. When the machinist who does nothing hour after hour but drill holes in metal pieces, sees that picture and recognizes how vital his drilling is to the final result of airplanes fighting in France, his work takes on a new interest to him and much of its monotony is forgotten.

Adding Interest to the Work

The bulletin board is another agency which may be used to good advantage. Today this board is used not only to post rules and regulations, safety warnings, and the like, but is given some of the interest of a newspaper's bulletin board by posting there notices of good records made by the men, announcements of bonus and other prize features, newspaper items or magazine articles on features that tie up closely with the work of the plant, announcements of new products, or statements of how the products of the factory are being used. One plant which had developed a large foreign trade, added exciting interest to its bulletin board by a series of illustrated bulletins on the various countries "where our products are sold." Some large factories find it possible to publish a small company newspaper or magazine, which is distributed among the employees, and of course lends itself to even greater publicity work than the bulletin board.

Labor turnover, thus, is a problem that reaches beyond considerations of wages and hours. It includes methods of hiring men, methods of placing and using them in the team, methods of stimulating interest in work and loyalty to the company, methods of fostering contentment and building up better citizens. These subjects will be considered in the three chapters immediately following.

V

Hiring and Firing

THE best place to stop—or at least to limit—labor unrest and turnover is at the source. The greater the care and judgment shown in selecting workers, the fewer will be the difficulties in holding them.

How Should the Hiring be Done

So important is this matter, that in many modern plants an employment manager, or even a good-sized employment department, does nothing else. However, the question as to who does the hiring does not concern us at this point. A much bigger and more vital question is, *how* should it be done. Whether it is handled by the employment manager, the owner of the business, the superintendent, the foreman, or a clerk, it must be handled right, if a lot of unnecessary trouble and worry over labor problems are to be avoided.

A good example of how not to do it is given by John R. Williams, secretary of Fayette R. Plumb, Inc., in an article published in the

Annals of the American Academy of Political and Social Science. The Plumb corporation operates extensive plants in Philadelphia and St. Louis.

"We heard one of our foremen interview an applicant one day when our need for men was urgent," relates Mr. Williams, "and the way he handled him opened our eyes to the possibilities of evil under such a system.

How Not to Do it

"When the foreman appeared on the scene, after the man had been waiting almost an hour, he approached him in a belligerent attitude, with—'Do you want a job?' The answer was 'yes,' and an inquiry as to the kind of work. This was answered in a monosyllable, and then the applicant asked what the job paid. With no attempt to explain the method of remuneration, the applicant was informed that we started men in and they could make fifteen cents an hour, but would soon learn and get more money.

"The applicant said, 'I could not work for fifteen cents an hour.'

"The foreman snarled, 'Hell! You don't want work,' and left the applicant standing in the hallway, with a blank look on his face.

"At about the same time we advertised for men, and our office was filled daily in the early morning. When the foremen had grabbed off as many as they needed in point of numbers, they paid no attention to the balance, but would instruct an office boy to tell the applicants that all jobs were filled.

"One day we received a letter from a workman who had noticed the advertisement, and wrote relating his experience in answering a previous advertisement from our factory. He stated that he did not want to try it again. He pointed out the fact that he had spent an hour and a half in the early morning to get to the factory at a cost of twenty cents, a loss of an hour in waiting at the factory, and the fact that he had eventually been dismissed by an office boy with no opportunity to see an executive. He was exceedingly bitter, and deservedly so. We wrote him a personal letter, apologized for such a condition and promised him it would never occur again to any applicant—and I don't believe it ever has. The injustice of such a method, coupled with the ruinous effect it must have on our reputation, made such an impression that the whole subject was taken up with the board of directors, and it was finally decided to create an employment department."

It might be added that the employment system in this corporation is now one of the best in the country and regarded as a model of its kind.

Steps in Employing Labor

Looking at the employment problem first of all as purely one of keeping the working force up to the proper number of employees, we find that three distinct steps are involved:

1. Determining what the requirements are.
2. Securing applications in large enough numbers to leave some room for selection.
3. Interviewing, testing, and selecting qualified people.

If a man is going to be successful in hiring workers he must go at the job in a systematic way and must pay close attention to each one of the three steps just named; for it is very seldom that good workers are simply "picked up" by chance. True a well-known and well-managed company will have a steady stream of men—or men and women—calling in search of openings; but this state of affairs is in itself the result of sound policies in dealing with questions of employment and labor for many years previous.

"Budgeting" Your Labor Requirements

In running the finances of a large business it is necessary to keep looking ahead, and every little while the prudent treasurer makes up an estimate of his money need for several months ahead; this advanced estimate is technically called a "budget." In the same way, a long-headed manager or superintendent or foreman—whoever is responsible for keeping up the working force—will try to figure out his requirements month by month, as far ahead as possible.

Though he may not have full knowledge of the company's production program, he can look ahead at least two or three weeks. He knows about how many workers will be required; he can make a good guess as to how many will leave or be discharged; and experience will tell him also about how many of the new people engaged will prove unsatisfactory. With these facts before him he can tell how many people, and what types, will probably be needed. Naturally, his estimates will be revised every day, as new conditions develop. Even though such an estimate may be faulty, it is far better to make it and form some definite idea of the methods which must be used to find the required number, rather than to follow the common practise of waiting until the new men are urgently needed and then making frantic efforts to locate them at a moment's notice.

If a large number of workers will be required, the man who is looking ahead can get all his machinery for recruiting applicants in ample time. If the number is small, he can keep his eyes open, make inquiries, and probably have new people ready to engage at the time when they are needed.

There is a tremendous waste of energy and money in most plants due simply to the fact that men are continually engaged for jobs for which they are quite unfitted. A man is told to report for duty because somebody "liked his looks" and is willing to take a chance on his making good; whereas a little common sense devoted, first of all, to specifying the qualities required, and second, to a quick size-up of the man, would have avoided the mistake very easily.

Analyzing Your Job Requirements

"Specifying what you want" doesn't necessarily mean going through a long process of analysis, or using many big words. It means simply jotting down in black and white the qualifications—physical, mental, and moral—which you consider really essential in that job. One firm has the foreman give the following information as to the job and the man wanted wherever there is a vacancy:

Job number and designation.
Brief description of job.
Time required to learn job.
Previous training or experience necessary.
Starting wage.
Next advance.
Wage limit.
Age.
Type.
Weight.
Does the worker stand up, sit down, or move around?

Does the work call for muscular strength?
Must the motions be quick or should they be deliberate?
Should the worker's hands be small or large?
Is extra good eye-sight required?
How much schooling is necessary?
Will the worker be called upon for overtime?

Even though you are going to hire the new man yourself, you ought to have very clearly in mind the answers to all such questions. Otherwise, you may easily engage a man because he makes a good impression on you and is strong in some of the qualities, only to find out later that he is deficient in others and cannot handle the job.

The first step, then, of "determining the requirements" turns out to be simply a matter of using a little foresight, instead of relying altogether on hindsight. This policy makes it easy for yourself—and for the employment manager, if your plant has one—to pick good timber. Unless a man follows this policy, he has only himself to blame if his working force consists largely of incompetents.

Securing Applicants

Having determined the type of workers required, the next step is to secure enough applicants of the right quality to give you some range of choice. To be sure, it is possible that the first man or the first few men who apply will satisfy you, and you will not want to be bothered with other applications; but it is more likely that you will search through a considerable list before you are ready to choose. Much depends, of course, on the nature of the job and on the general state of the labor market.

Assume that the times are normal and that you want to employ, within two weeks, twenty high-grade machinists. Where will you look for candidates? Let us answer this question fully by listing all the possible sources:

1. Your personal acquaintances. This is ordinarily a very limited source of applications.

2. Those whom you can reach by spreading it about through your friends that you have openings for good men. You might draw out a small number of applications in this way.

3. Friends of present employees. This may be an excellent way of getting hold of good men. It nearly always pays to put up bulletins in your own plant when new men are wanted.

4. Previous employees who would like to return to your plant. It is well to keep track of workers who leave with clear records. If your plant is well run, they are apt to regret their leaving and to be anxious to come back; and when such men return, they may prove "stickers."

5. Employment agencies. Some of these agencies are good; most of them are indifferent. In any case, there is usually no harm in allowing them to send around candidates.

6. Advertising, either through a signed ad or one which is "blind"—that is, does not disclose the name of the firm. The results from classified advertising (Help Wanted Ads) depend to a surprising extent on the wording of the ad-

vertisement. If it is cold and stilted, it will normally pull much fewer replies than an advertisement which is written in a more direct and personal style. This is a point well worth bearing in mind in writing such advertising—and, in fact, in all dealings with prospective employees.

7. Voluntary applications which drift in without any special effort on your part. In large and well-known plants their number may be considerable.

From these seven sources you should readily secure within the two-week period open to you, several times as many applications as you have places to fill. A large proportion will come from people who are clearly unfit and can be dismissed without spending much time on them. The others should have careful attention. The men should be interviewed and tested, one at a time, and a record should be made of the qualifications of each one. A few who are "finds" may be engaged at once. The records of others should be held together for final review and selection at the end.

The procedure described will vary with plant requirements, in each individual case; but it will serve to illustrate the general methods that should always be followed.

There are few more difficult tasks than to size-up an applicant intelligently in an inter-

Interviewing the Applicant

view. Where it is necessary to hire large numbers of men in a short space of time it is almost out of the question to do so. In such cases, it is necessary to pick out hastily a sufficient number of the most likely-looking, allowing a reasonable surplus for discards which may be needed later.

Even with the best of conditions, the problem is difficult, because it is next to impossible to put the applicant at his ease. He may be submissive, entreating or antagonistic, depending on how badly the job is needed and on his previous treatment in similar cases. In any case, his attitude is not normal.

This is where the interviewer with human sympathies and a pleasing personality wins out. He realizes that both sides must be benefited if the deal is to be satisfactory. Accordingly, he makes an especial effort to consider the job from the applicant's point of view and to decide, as far as possible, whether the job and the man really fit each other.

Putting the Applicant at Ease

An executive with the proper attitude of mind will soon have the applicant at ease and can then tell by judicious questioning what his past experience has been. He will of course aim to detect the applicant's faults, if any exist. A man of this kind does not expect

Google

perfection in his applicants, knowing full well that the perfect man or woman is probably not looking for a job of any kind. The true object of the proceeding is not to throw out the unfit, but to determine those who are well qualified. And the firm is the loser when a good man is allowed to go away unemployed, just as much as when a worthless man is engaged.

Great care should be taken as to the kind of questions asked and the way in which they are put. Some employment men catechise a man as though he were on trial for his life and make him feel like a law breaker. Too many family questions are not justified. It is all right to ask where a man has worked and why he left the last place, but it is just as well not to place too much importance on it.

He may have been discharged by a czar-type foreman for some trivial reason and still be an excellent and a profitable man for your shop.

The executive conducting the interview should not forget that he is being sized-up at the same time, and very often with considerable intelligence. And on this may depend much of the new man's attitude toward the firm and the job.

Then, too, he must not forget that to a large extent he holds in his hands the destinies of many people. An error of judgment may not only lose an excellent worker for the firm, but it may also seriously and permanently affect his whole future. Being declared unfit by a well-known employment manager, may easily make it difficult for the applicant to find other employment or may cause him to lose his grip. The responsibility is always a serious one.

Ironclad Rules of Judging are Dangerous

Partly for this reason, it is extremely dangerous to adhere to ironclad rules in judging people of any kind. Just because blue eyes may denote certain tendencies in most people does not establish an infallible rule in all cases, and rare discrimination is needed to prevent serious errors and grave injustice. Some of the best employment managers are great students of psychology and other sciences. But they temper all these rules with judgment based on their own experiences.

The selection of people for particular jobs must be done very largely upon the basis of physical requirements, plus such information as to their mentality as can be brought out in the interview. Where the work is heavy, as in foundries, steel mills, and in many other places, the physical qualifications of the applicant count for most. Many modern shops now require a physical examination by a doctor. The present urgent need for men causes this requirement to be waived to a large extent. However, it is obviously foolish to hire a small and not overly strong man for work where great strength is required.

A careful observation of physical characteristics during the interview may be of great help. As an instance, the British Ministry of Munitions, which is utilizing women very largely in trades hitherto closed to them, offers this suggestion for selecting women for delicate and intricate work in tool rooms. "Pick intelligent women who are quick to learn and choose those with long, sensitive fingers, as these have been found best adapted to work of this kind."

Offhand Impressions are Not a Safe Guide

The amount of mental alertness shown in this first interview is not always a safe guide. It should be noted, however, as closely as possible and considered in connection with the other qualifications. Neither can too much attention be paid to the reasons given for applying for the position, which some use as a test. The answers to questions of this kind too often depend upon what the applicant thinks will make the best impression.

Records very often show whether a man is a drifter or not. And yet even here it is well to know all the circumstances before passing final judgment. There are plenty of good men who have been unfortunate in getting into certain shops just before business slackens or in some such way are compelled to make frequent changes. Yet some of these men would gladly stick to the job for months or years under normal conditions. Questions of this kind require the judgment of a keen-minded executive, both for the best interest of his firm and in order to be perfectly fair to the applicant.

Judgment of men and women can also be aided by drawing up a series of questions which will test the applicant's knowledge of a given job or trade. The War Department of the United States has a Committee on Classification of Personnel which enormously increased the efficiency of the army organization through its work of testing and properly classifying the men enlisted and drafted into the army. Out of every hundred soldiers an average of twenty-five specialists are needed—that is, men who are skilled in particular trades. One of the jobs of the personnel officers, working under the direction of this Committee, is to sort out the recruits as they are received and pick out the skilled and experienced workmen. This they do by means of trade tests.

In the army three kinds of trade tests are used: (1) oral trade tests, (2) picture tests, and (3) performance tests.

Trade Testing the Applicant

An oral test consists of a series of questions which the examiner asks the man under examination. For example, suppose the man says he is an electric crane operator. The personnel officer may know nothing of the technical operation of an electric crane, but he refers to his little book of trade specifications and under the heading "electric crane operator" he finds a series of questions and answers. He asks the applicant each of the questions in turn, and is able by comparing the answers given with those found in the book to determine whether the man is an expert electric crane operator, or an apprentice in that work, or a novice with no practical knowledge of it at all. Each trade has its list of questions and answers, all conveniently indexed, by means of which the examiner can quickly determine the relative rating of the applicant.

Picture tests are used to supplement the oral tests. In this case, photographs or drawings of machinery or tools are used as a basis for questioning. A lever or valve may be pointed out, and the applicant asked to explain its use. Or he may be asked to explain the purpose or describe the operation of the machine.

In the performance test, actual machines and tools are used. This of course is the final test of the applicant's knowledge and expertness, and is necessary only in determining grades of ability. For example, the oral test eliminates all novices and persons with only a smattering of the trade. Those who survive this and the picture test may be put through the performance test to determine their relative expertness and skill.

All three of these methods of testing are in use in industrial plants today, and it is fair to assume that they will be increasingly used in the future. Their widespread use and clearly demonstrated value in the personnel work of the army has opened the eyes of modern employment managers everywhere, and the old policy of accepting a man's own say-so is rapidly going into the discard.

While the great need for men today compels industries to employ almost anyone who is at all capable, we must also bear in mind that these conditions will not always last, and that the problems of employment will be quite different when things become normal once more.

In many modern plants the employment manager does all the hiring and firing. The foreman runs his own department after the man is assigned to him and may even have a hand in making the final selection from those who look good to the employment manager, but he is not expected to spend time in engaging men. In the same way, the foreman may request the removal of a man from his department on almost any grounds, but he cannot discharge him. And if he requests too many eliminations, he is apt to be seriously questioned as to the reasons. Personal differences no longer constitute good and sufficient reasons for the discharge of a good man, as in former days.

Transferring Men to other Departments

If a man does not suit the foreman, he is usually transferred to some other department in the hope and belief that he may fit into the work in that section of the plant. In some plants it is customary to give a man three trials before finally discharging him. This is in the belief that he is good average material and that whatever experience he may have gained in the plant during his stay, however brief, is of more value to his present employer than to anyone else.

In some shops, the Packard Motor Company being a notable example, it is made rather difficult for a man to quit his job without a good reason. Before he can draw his money he is invited to visit the office of the employment manager and explain his reason for leaving. He can of course leave, if he desires, but he is shown that it is the wish of the company to keep him if possible and to find work on which he can make good. Interviews of this kind with men who are leaving, enable the employment manager to sense any undercurrents which may be running through the shop. They also make the workman feel that he had received careful consideration and has not been turned adrift at the whim of some individual who may not have liked his personality.

Firing Not to be Done Lightly

Wherever the power to discharge men may be lodged, it is clear that firing a man, is not something to be done lightly. Every precaution should be taken to see that no serious injustice is done to any employee.

Right here is the underlying idea of all the personnel work which has grown so rapidly in recent years. It is all an expression of the feeling among enlightened employers that every workingman must have his fair chance for employment, for a just hearing on complaints and charges, for education, for decent home surroundings, and for self-development. A fair chance and a square deal for everybody! That is the spirit of modern industry—the spirit of hearty teamwork and real efficiency.

VI

Knowing Your Men

LATE in the fall of 1917 a mechanic, a fine, sturdy fellow, appeared at the office of the Aetna Automobile Works.

"I saw your advertisement this morning for tinsmiths," he announced, as a young man advanced to request his business.

"Yes. Well, Mr. Waters is now in the factory. He will be out in a few minutes. Just be seated for a moment, please."

Accepting a Man's Own Say-so

Presently Mr. Waters entered. There was a look of anxiety on his face. Evidently the crippled condition of the sheet metal department which was now threatening to interfere with the production of other departments dependent upon it, had something to do with that worried expression. It disappeared quickly, however, as his eyes fell upon Sheridan. Already much of his time had been uselessly spent interviewing applicants only to find them unfit. This man looked good.

"I've been with the United Motor Company for three years up to two months ago," explained the applicant. "I left because I could not get along with the foreman. For the past two months I helped an inventor who was working upon a new type of body."

"And before you went with the United, Mr. Sheridan?"

"Before that I spent five years with the Fordham Company. I left there because I thought I could do better with the United."

"He knows the game," decided Waters. And he was right; Sheridan did. Whereupon Sheridan was duly turned over to the foreman of the sheet metal department for further attention.

It was just one hour later that Waters passed through the department, and paused a moment to watch Sheridan at work. "Fine," he muttered and passed by.

He had only gone a few steps when he came to an abrupt halt. "I wonder why he left the Fordham; good people; good pay; and one of the most up-to-date plants in the country." It had just occurred to Waters that it was not like the Fordham Company to let a good man get away to "do better" with someone else.

Like a good business man who cleans up

as he goes along, Waters immediately telephoned the United Motor Company, Sheridan's recent employer.

"Wait a minute, I'll give you the office," said the operator.

"I'll give you the superintendent; I guess he will know," was the next reply after Waters repeated the inquiry.

After Waters had half of the plant and those employed therein "given him," he was at last in touch with the foreman of the tinsmith department. Surely he would know.

Alas! He had been there only three weeks. Davidson, the old foreman, "and a fine fellow, too," said the new man, left about a month ago. And as far as could be ascertained, it was quite apparent that Sheridan's record had been carried away in Davidson's head.

"It is now three years since he was with the Fordham Company. They are ten times bigger than the United Motor Company, and have probably forgotten all about him," reasoned Waters, "But, at any rate, I'll try."

"You want information regarding a former employee, Mr. Waters? Just a minute, I'll connect you with the Personnel Department."

"I suppose I'll waste another half-hour now," growled Waters. But he was mistaken.

"This is Mr. Maxwell of the Personnel

Department speaking." The response came almost immediately.

"I've just hired a tin-smith named Sheridan," explained Waters. "John Sheridan. He worked for you about three years ago. Do you suppose the foreman of the department could give me any information about him?"

A Company that Knows its Men

"I do not, Mr. Waters. But if he was ever employed here, I'll let you know all about him. Just hold the wire until I get his record."

Waters pulled out his watch, and wondered what portion of a day that little trick would take. He had scarcely time to replace it before the answer came.

"I have his record before me, Mr. Waters. I suppose you will be interested in hearing it all, so I will start at the beginning.

"John Sheridan was born April 29, 1880, and was twenty-nine years of age when he came with us. He was married and had one child. He is an American; place of birth, Sherman, Pa. Sight of left eye slightly impaired due to an accident at the age of twenty-five. Before coming with us he spent nine years with the Deposit Stamping Company, Deposit, N. Y. They went into bankruptcy. He started work with us October 3rd, 1909. He was raised twice during the three years following, and was considered one of the best workers in his department. He was awarded a second prize of fifty dollars in gold on April 1st, 1913, in a contest which was inaugurated the first of that year.

"Not long after this there was a sudden change in his conduct. His attendance was irregular, and on three occasions he was clearly intoxicated when he reported for work. He caused us considerable trouble by circulating false rumors as to alleged wage reductions and started a foolish agitation for a seven-hour day which came to nothing. Finally he brought things to a climax by insulting the superintendent and we were obliged to discharge him. He is ineligible for future employment with us. However, it is clear that he is a good workman and can be trusted to do a good job so long as he keeps aways from booze and bad company."

"Well, Mr. Maxwell, I am sure that is very complete, and to say thank you is hardly enough. But, am I to understand that you have detailed records like that for all your twelve thousand men?"

"For every man, provided he has been with us for a full working day," replied Mr. Maxwell. "If you are sufficiently interested I will be glad sometime to show you how easily such records are accumulated."

A short conversation followed and as Waters hung up the receiver, he took from his pocket a small leather-bound diary. Under date of October 18, 1917, he wrote as follows: "Fordham Auto, 2:30 P. M."

When Sheridan appeared the next morning he was told that the boss wanted to see him, and a frank man-to-man talk followed. The net result was that he got still another chance, but with the full knowledge that he was on probation and would get either rapid advancement or a final discharge, as his own conduct might determine. Mr. Waters felt that he was no longer dealing with a stranger, but with a man whom he thoroughly knew.

The incident just related gives a fair picture of the methods of various types of production concerns in keeping informed as to individuals who make up their working forces. We might classify the concerns into four groups.

Four Types of Concerns

First, there is the small company in which the officers are personally acquainted with every worker; they know, or think they know, where he lives, what kind of a home he has, his personal habits, and his good and bad qualities as a workman. Frequently, the officers of such concerns are not so well informed on these points as they think; but, in general, there is no especial difficulty in "getting a line" on their men.

Second, there is the larger company (like the United Motor Company) which has reached the stage in which it is impossible to keep in close touch with each individual, and yet no systematic plan for collecting information has been installed.

Third, there is the good-sized company, the management of which regards the workers as so many "hands" and pays no attention to their varying personalities and individual records. This type of concern, however, is rapidly disappearing.

Fourth, there is the good-sized company (like the Fordham Company) which takes pains to keep in close touch with each man, and by the use of systematic methods accumulates a complete file of data regarding him.

This fourth type is the one we shall keep before us in the remainder of this chapter. Much that is said here may be applied just as well in small concerns—and certainly could be adopted with profit by all large companies that have not yet given sufficient attention to this vital problem of knowing their men.

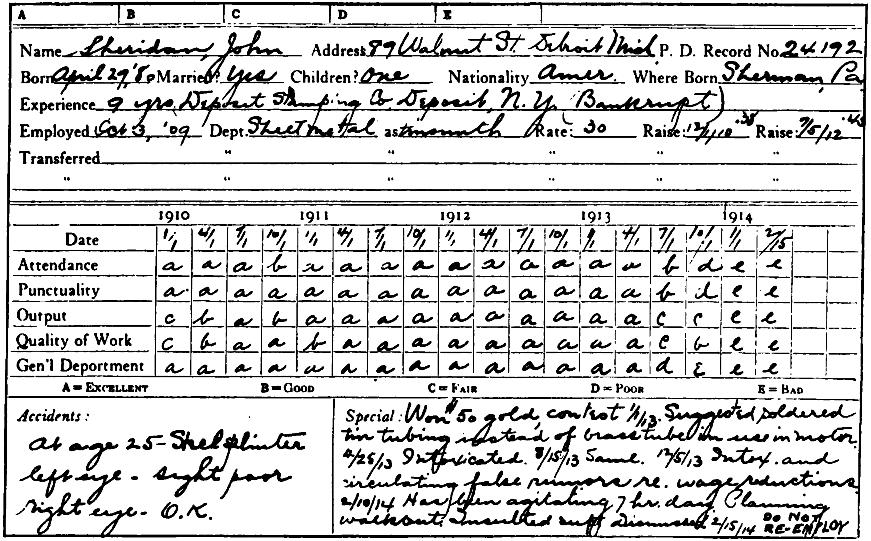
In the modern industrial plant of the fourth type, the history of every employee is

The Machinery of Keeping Personal Records

a matter of written record. Without attempting to go into details of the system for keeping up these records, it may be of interest to review an unusually good and complete system now in use. It is illustrated in the accompanying forms, which show how the Fordham Company accumulated its information regarding John Sheridan.

For each employee there is a personal folder in an ordinary vertical correspondence file. These folders, arranged in numerical order, are used for filing many papers that are too frequently thrown away or filed where no one will ever see them—for instance, each man's original application, replies to inquiries that have been made about his previous record, periodic reports on his work and attendance. All such papers may be found within each man's folder.

Another cabinet contains the personal record cards. These are 5 x 8 inches in size, and are filed in alphabetical order. Each personal record card contains at the beginning a brief abstract of the information already gathered from the new employee's application and references. There remains ample space for future entries which will reveal how well or poorly he does in respect to



A B C D E

Name Sheridan, John Address 89 Walnut St. Detroit Mich. P. D. Record No. 24192
Born April 29 '80 Married? Yes Children? One Nationality Amer. Where Born Sherman, Pa.
Experience 9 yrs. Deposit Stamping Co. Deposit, N.Y. (Bankrupt)
Employed Oct 3, '09 Dept. Sheet metal as tinsmith Rate: 30 Raise: 12/1/10 .38 Raise: 7/5/12 .4
Transferred " " " " "
" " " " " "

	1910				1911				1912				1913				1914			
Date	1/1	4/1	7/1	10/1	1/1	4/1	7/1	10/1	1/1	4/1	7/1	10/1	1/1	4/1	7/1	10/1	1/1	2/15		
Attendance	a	a	a	b	a	a	a	a	a	a	a	a	a	a	b	d	e	e		
Punctuality	a	a	a	a	a	a	a	a	a	a	a	a	a	a	b	d	e	e		
Output	c	b	a	b	a	a	a	a	a	a	a	a	a	a	c	c	e	e		
Quality of Work	c	b	a	a	b	a	a	a	a	a	a	a	a	a	c	b	e	e		
Gen'l Deportment	a	a	a	a	a	a	a	a	a	a	a	a	a	a	d	E	e	e		

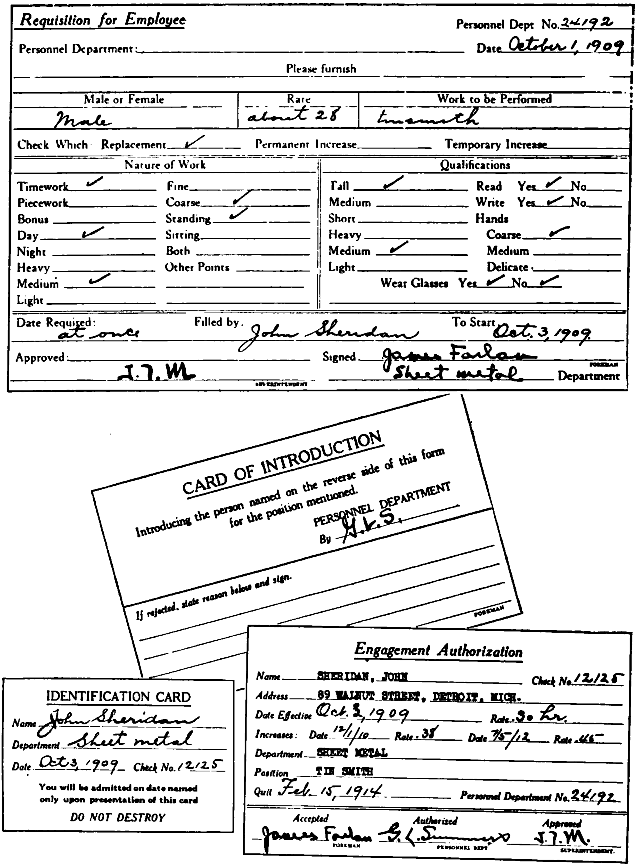
A = EXCELLENT B = GOOD C = FAIR D = POOR E = BAD

Accidents: At age 25 — Steel splinter left eye — sight poor right eye — O.K.

Special: Won $50 gold, contest 1/1/13. Suggested soldered tin tubing instead of brass tubes in use in motor. 4/25/13 Intoxicated. 8/15/13 Same. 12/5/13 Intox. and circulating false rumors re. wage reductions. 2/10/14 Has been agitating 7 hr. day. Planning walkout. Insulted supt. Dismissed 2/15/14 DO NOT RE-EMPLOY

EMPLOYEE'S PERSONAL RECORD CARD

It was this card that enabled Mr. Maxwell to answer promptly and completely the question regarding John Sheridan. The card contains a summary of Sheridan's record during his employment with the Fordham Company, and is made from various reports received from time to time by the Personnel Department. Some of these reports are shown in the forms following



Requisition for Employee

Personnel Dept No. 24192

Personnel Department: ______ Date October 1, 1909

Please furnish

Male or Female	Rate	Work to be Performed
Male	about 28	tinsmith

Check Which Replacement ✓ Permanent Increase ____ Temporary Increase ____

Nature of Work		Qualifications	
Timework ✓	Fine	Tall ✓	Read Yes ✓ No
Piecework	Coarse ✓	Medium	Write Yes ✓ No
Bonus	Standing ✓	Short	Hands
Day ✓	Sitting	Heavy	Coarse ✓
Night	Both	Medium ✓	Medium
Heavy	Other Points	Light	Delicate
Medium ✓		Wear Glasses Yes ✓ No ✓	
Light			

Date Required: at once Filled by. John Sheridan To Start Oct. 3, 1909

Approved: J. T. M. SUPERINTENDENT Signed James Farlan FOREMAN

Sheet metal Department

CARD OF INTRODUCTION

Introducing the person named on the reverse side of this form for the position mentioned.

PERSONNEL DEPARTMENT

By G. L. S.

If rejected, state reason below and sign.

FOREMAN

IDENTIFICATION CARD

Name John Sheridan

Department Sheet metal

Date Oct. 3, 1909 Check No. 12125

You will be admitted on date named only upon presentation of this card

DO NOT DESTROY

Engagement Authorization

Name SHERIDAN, JOHN Check No. 12125

Address 89 WALNUT STREET, DETROIT, MICH.

Date Effective Oct. 3, 1909 Rate. 30 hr.

Increases: Date 12/1/10 Rate. 38 Date 7/5/12 Rate. 46

Department SHEET METAL

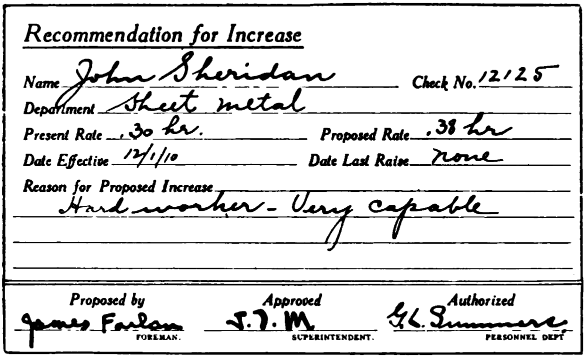
Position TIN SMITH

Quit Feb. 15, 1914 Personnel Department No. 24192

Accepted James Farlan FOREMAN Authorized G. L. Simmons PERSONNEL DEPT Approved J. T. M. SUPERINTENDENT.

WHEN JOHN SHERIDAN WAS HIRED

The Foreman's requisition for a tinsmith caused the Personnel Department to hire Sheridan. Following his engagement, he was given a Card of Introduction, with the Engagement Authorization on the opposite side, and an Identification Card admitting him to the works



Recommendation for Increase

Name John Sheridan *Check No.* 12125

Department Sheet metal

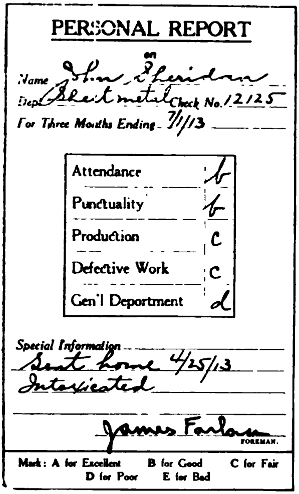
Present Rate .30 hr. *Proposed Rate* .38 hr

Date Effective 12/1/10 *Date Last Raise* none

Reason for Proposed Increase Hard worker - Very capable

Proposed by	*Approved*	*Authorized*
James Farlan	J. T. M.	G. L. Summers
FOREMAN.	SUPERINTENDENT.	PERSONNEL DEPT

Good work earned a recommendation for an increase in wages, which was proposed by the Foreman in this form



PERSONAL REPORT

on

Name Jno Sheridan

Dept Sheet metal *Check No.* 12125

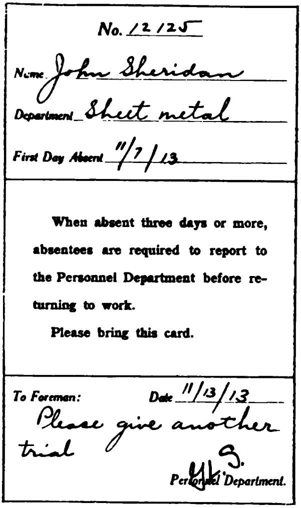
For Three Months Ending 7/1/13

Attendance	b
Punctuality	b
Production	c
Defective Work	c
Gen'l Deportment	d

Special Information Sent home 4/25/13 Intoxicated

James Farlan
FOREMAN.

Mark: A for Excellent B for Good C for Fair D for Poor E for Bad



No. 12125

Name John Sheridan

Department Sheet metal

First Day Absent 11/7/13

When absent three days or more, absentees are required to report to the Personnel Department before returning to work.

Please bring this card.

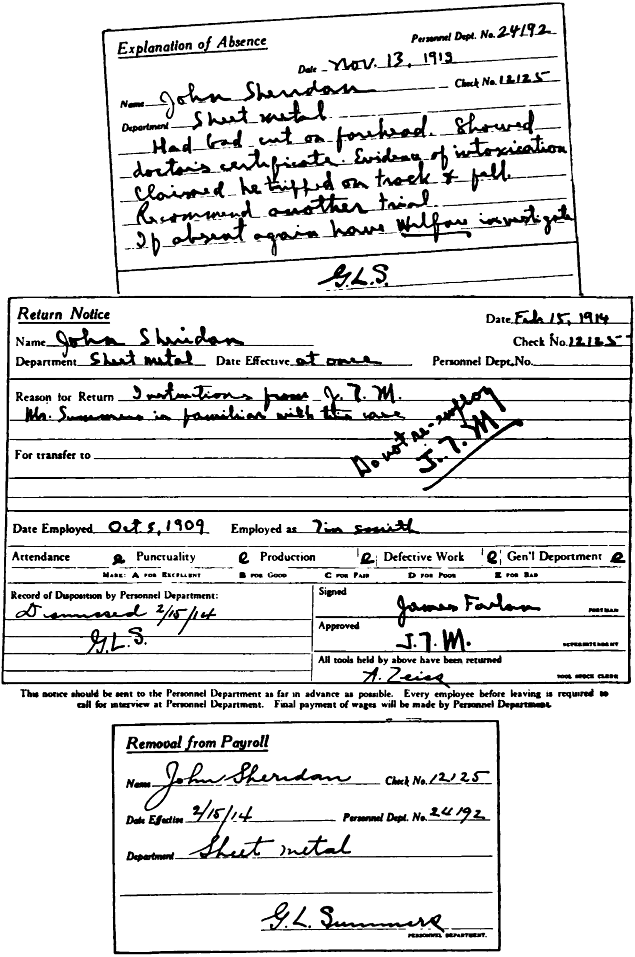
To Foreman: *Date* 11/13/13

Please give another trial

G. L. S.
Personnel Department.

Every three months a report is made by the Foreman. This one shows Sheridan's first lapse

Absentees report to the Personnel Department. The Personnel Manager here recommends another trial



Explanation of Absence

Personnel Dept. No. 24192

Date Nov. 13, 1913

Name John Sheridan

Check No. 12125

Department Sheet metal

Had bad cut on forehead. Showed doctor's certificate. Evidence of intoxication. Claimed he tripped on track & fell. Recommend another trial. If absent again have Welfare investigate

G.L.S.

Return Notice

Date Feb 15, 1914

Name John Sheridan

Check No. 12125

Department Sheet metal

Date Effective at once

Personnel Dept. No.

Reason for Return Instructions from J.T.M. Mr. Summers is familiar with this case

For transfer to

Do not re-employ J.T.M.

Date Employed Oct. 5, 1909

Employed as Tin smith

Attendance	E	Punctuality	E	Production	E	Defective Work	E	Gen'l Deportment	E

Mark: A for Excellent B for Good C for Fair D for Poor E for Bad

Record of Disposition by Personnel Department:

Dismissed 2/15/14

G.L.S.

Signed James Farlan FOREMAN

Approved J.T.M. SUPERINTENDENT

All tools held by above have been returned

A. Zeiss TOOL STOCK CLERK

This notice should be sent to the Personnel Department as far in advance as possible. Every employee before leaving is required to call for interview at Personnel Department. Final payment of wages will be made by Personnel Department.

Removal from Payroll

Name John Sheridan

Check No. 12125

Date Effective 2/15/14

Personnel Dept. No. 24192

Department Sheet metal

G.L. Summers

PERSONNEL DEPARTMENT.

WHEN JOHN SHERIDAN WAS FIRED

The "Explanation of Absence" shows how carefully each case is looked into. The Return Notice shows that the actual dismissal is done by the Personnel Manager, on return from the Foreman, approved by the Superintendent attendance, punctuality, quality of work, output and general deportment.

Once a man is on the payroll many things happen which affect his record. If competent, industrious, and regular, higher compensation will eventually be the reward. Competence and regularity in attendance in a well organized industry must be supported by indisputable records. Absolute justice must be the governing factor always—justice not only to the individual benefited, but to his fellow workers as well. Nothing is worse in an organization than a general impression of favoritism.

Actual Performances Count

Foremen are quite likely to make wrong estimates in determining the efficiency of men. Highly competent men are often poorly qualified to "blow their own horns." They can turn out the goods, but fail absolutely to advertise themselves. They are producers, not salesmen. Others not so competent are more capable in exploiting their accomplishments whenever they do something worthy of notice.

Actual performances only should count. These should be a matter of unquestionable record. It is not sufficient to state the case. The records must prove it.

Day labor tickets, job tickets, defective work and scrap reports, are usually the basis for determining what a worker is actually producing. Wherever a great deal of the same kind of work is being done, some fair comparison of efficiency among the individual workers can be figured out. The labor tickets give a basis for a summary which shows each worker's performances in comparison with a set standard. By simply dividing the quantity completed by each operator during a given period into the amount paid him for the same period, we arrive at the direct labor cost per unit for each operator's output. This will quickly show which workmen are producing the best results.

Consideration must always be given to the time element. This is important. A man on an hourly rate of fifty cents is cheaper than another getting half that amount, if he produces twice as much in the same space of time. True, they are both paid the same for equal production, but the cheaper man is consuming twice as much overhead expense as the one being paid the higher rate.

Through constant use of such records the foreman can before long place each man upon the particular job for which he is best fitted. These records will often uncover also weaknesses in equipment, which may be directly responsible for either poor or slow work, or perhaps both.

The Foreman Knows and Can Prove It

In one case it was found that an ill-chosen chair was responsible for a poor production record. A higher chair with a back rest was substituted and resulted in a marked increase besides adding comfort. In another instance the record of an operator showed a large percentage of defective work on a milling operation. The discovery of a lot of poor foundry castings resulted. In a third case, the making of springs, an operator's record showed a forty per cent decrease below normal production on a "wind and cut off" operation. An investigation revealed that shears were being used for cutting off, instead of the automatic clipper. Then it was discovered that some time ago the clipper had been sent to the tool room for sharpening and had not been returned.

That the alert foreman will discover these things "anyway" does not always follow. Sometimes he will—eventually; other times he will not—ever. "Eventually" does not fit with present-day methods. Delay means pay. Where there is a standard, that standard is of use only when the operation records are compared with it, and with each other. Instead of the slow method of seeking everywhere for a little trouble, how much better and quicker it is to know exactly where something is wrong. Then go to it and correct. Nothing vital can get away from the alert foreman who watches his records.

Competence, then, should be determined by "what a man has done." What he has done should be a matter of indisputable record, traceable directly to the production or job ticket covering each particular job. No possibility then exists for error, favoritism, or poor judgment.

Regularity and punctuality often prove the efficiency and certainly the faithfulness of the shop employee. Fortunately such records are easily compiled. Mechanical devices reduce to a minimum the clerical work required. The "recording clock" record can not be questioned.

No Worker Can be Forgotten

Employees' personal records are not mere ornaments. It is not unusual for a foreman to be called upon to explain why a man having a good record over a considerable period has not been advanced. The plan operates just as well the other way; it becomes an easy matter to show a complaining employee why he is not moving upward.

Each record should be carefully examined at least twice a year. The results of contests, special accomplishments, in fact anything worth knowing about a man—good or bad—is of interest and gets into his personal record card.

The Square Deal for Every Man

At many plants it does not lie within the province of a foreman or superintendent to discharge an employee. He can get rid of him, so far as he is concerned, by "returning" him to the personnel or employment department, or to some executive officer of the plant. The man's record is then referred to; and upon this record, in connection with the reason for his "return," depends whether he is transferred to other work, or discharged. If he is discharged, the paymaster is sometimes instructed to forward his wages to the personnel department. Here every employee must finally appear before dismissal. If he has any complaint, it is carefully looked into. He is well advised; he is never thrown out. His leaving is a ceremony; staged to leave an impression and to make him a better man.

In a particular case, a lad of eighteen had committed a theft through the alteration of a job ticket, which he did not know the cost system would discover. The boy's record was good. After a full confession he was given another chance. The stealings were repaid in installments, and the lad kept straight. Instead of being cast down, he was lifted up. He had simply been misguided, and his deportment since has proved the wisdom of this action. Yet this very important crisis in this young man's life is known to only three men in that large organization of over twelve thousand.

The one big purpose in keeping a record for every employee is to give every man a square deal. With a right record system the unjust handling of any employee becomes almost impossible. The facts are in plain sight. The man makes his own place in the organization and fixes his own earnings.

Business, both large and small, is today more generous, more human and more anxious to do the right thing by each man than ever before. Today the employer of men gives all he can for what he gets. The old, short-sighted policy "give as little as you can" is discredited.

Self-interest in holding a force together and genuine brotherly interest in the welfare of each employee both lead to the same policy —to watch each worker carefully, to pay him every cent he is worth as shown by his own record, and to give him every incentive to increase his earnings.

Progressive concerns go even farther. Not satisfied with knowing their men, they make this merely the first step in a systematic campaign to help the men develop themselves. But this is a subject for another chapter.

VII

Helping Men to Develop Themselves

"ANY man who works for us in any capacity and does not feel that this is the one company in the world for him to work with and be happy, is not yet really one of us," said George M. Verity, president of the American Rolling Mill Company, in a recent interview. "We have found a way of living and working happily together. Our rate of labor turnover is low. Employees are slow to leave us. And we gather together and keep a high quality of men."

Three Factors in Man-management

Mr. Verity is head of a factory organization of more than five thousand steel workers, and he has built up this organization and keeps it adequately manned through the operation of three policies:

1. Good judgment in employing workers.
2. The square deal in handling workers.
3. Mutual interest in developing workers and keeping them fit.

The first two policies have already been treated in the two chapters just preceding, as well as in other Units of this course. The third policy involves what is commonly called "welfare work," and represents one of the vital features of modern industrial organization.

Betterment or Welfare Work

Welfare or betterment work is the name usually given to the voluntary efforts of high-grade companies to help their employees develop themselves. It includes a wide range of activities and interests—rest rooms and recreational facilities, hospitals and medical attendance, provision for housing, night schools and other educational facilities, beautification of the factory grounds and vicinity, and in some cases the providing of churches, libraries, schools and other equipment for community life.

A good part of the town of Hopedale, Massachusetts, for example, is the creation of the Draper Company whose extensive factories for the manufacture of machinery are located there. This company employs practically all of the working population of the town. It has built comfortable houses for its employees, transforming the setting into a beautiful park laid out by a landscape architect. It has built macadam streets, and in countless other ways made the neighborhood a pleasant place to live in. The streets, schools, churches, and most of the dwelling houses in Ludlow, Massachusetts, were built by the Ludlow Manufacturing Associates, a corporation which operates important mills in that place. The same plan has been followed by the Pelzer Manufacturing Company in the town of Pelzer, South Carolina, the seat of its extensive mills.

In each of these cases it was not mere sentiment that caused the industries to go into these activities, which seem at first sight entirely foreign to the purpose of manufacturing. It was good business for the Draper Company to develop Hopedale; it was sound practical management for the Ludlow people to provide churches and schools as well as houses; and the Pelzer Company has found that its housing development was vital to the proper manning and successful operation of its mills. It is the same with factory rest rooms, apprentice schools, and factory hospitals. All these things are "extras." They are a little more than the letter of the law requires of the employer. And yet, they are never for a moment to be thought of as in the nature of charity or philanthropy.

"We do not handicap our efforts in this di-

Google

rection by calling them 'welfare work,'" says Mr. Verity, referring to the American Rolling Mill Company organization in an article in *System*. "These words are justly poison in a healthy-minded workman's ear. Many a concern has conceived employee activities and blessed them with the best of intentions at birth, only to have them go wrong through the blight of a wrong name. An honest, able workman despises charity. But if you show him the way to help himself you will usually find him an apt pupil. That is why we call our effort 'mutual interest' work. The phrase describes our purpose.

Welfare Work is "Mutual Interest" Work

"And we have succeeded in convincing a large percentage of our men that we want them to be well housed, well fed, well paid, healthy, and happy, for the reason that we know they are better and more productive workers when they are all this. The situation is put to them plainly something like this: Mutual interest is the basis of our operations. It simply means, 'You help us and we will help you, and together we can accomplish more than we could were we to go it alone.'"

Mutual interest is, or should be, the basic factor in planning all such activities, and in carrying them on. The idea always should be one of helping the worker to develop himself, rather than that of passing out gifts or special privileges with an air of fatherly good will. It is a business man's affair, and should always be operated frankly as such.

Three Types of Welfare Work

This mutual-interest or welfare work (the latter term has become so closely tied to the movement that economy of explanation practically requires that it be used in this brief discussion) may be classified into three groups or types according to the particular interests which it serves. Thus we have:

1. *Welfare work which helps men keep in good health.* This includes the providing of sanitary and hygienic facilities, good air and light, lockers for clothing, dressing rooms, baths, rest rooms for women workers, restaurant facilities, medical examinations, first aid to the injured, hospital service, visiting nurses, gymnasium or facilities for athletics, and the like.

2. *Welfare work which helps men make and save more money.* Under this heading are shop schools, technical lectures, and educational courses of various kinds; sickness, accident, and old-age pensions; the providing of facilities for investing savings and stimulating thrift.

3. *Welfare work which helps men en-*

joy themselves more easily and healthfully. Many of the activities already named contribute to this end also, but in addition there are such specialized activities as social clubs and societies, concerts and other entertainments, beautification of factory grounds, and other efforts to raise the tone of living.

While the activities can be classified in these groupings, you will find that in many cases a single item of welfare work will operate in more than one way. For example, some years ago the United Shoe Machinery Company provided for the several thousand employees in its plant at Beverly, Massachusetts, a large club equipment. The equipment included extensive grounds, a golf course was laid out, tennis courts and baseball fields were set apart, and a comfortable club house with facilities for bowling, pool, lectures, meetings, and other social activities was built. The United Shoe Machinery Athletic Association was organized among the employees, and the club house and grounds, with all facilities, were given over to the Association for the use of its members. Though the purpose of this enterprise would seem to be the improvement of the physical condition of employees through athletics and sports, as a matter of fact the Association has fostered educational work of various kinds, has directly influenced the employees in a social way, and thus has combined several kinds of mutual-interest work.

It is impracticable to take up within this chapter all the various phases of welfare work, but it will be interesting and well worth while to consider several of the more important items.

Factory Hygiene

Factory hygiene, or preventive medicine, for example, was little thought of a few years ago, but today you will find it being applied in factories in every part of the United States. The old factory was a dismal, gloomy place. Windows were incidental; ventilation received little thought; physical comforts were not considered. In planning the modern factory, careful attention is given to proper lighting and ventilation, buildings are shaped and windows are placed so as to give the maximum of sunshine (or, where artificial lighting is necessary, the arrangement of light is carefully planned and its quantity scientifically regulated), and stools, workbenches, machines, and other equipment are designed with a view to the comfort and convenience of the man or woman using them. By improving the air of the workrooms and removing the strain of unnecessary reaching for an out-of-the way lever, many a plant has increased its production and at the same time increased the health and earning capacity of its employees.

Other factors in this problem of relieving the strain and promoting the efficiency of work are rest rooms for women and reading rooms or game rooms for men. Such facilities give a touch of comfort to a plant which goes a long way toward making the workers stick. The installation of shower baths is becoming usual in factories where the work is uncleanly. In chemical works, paint factories and the like, such facilities are regarded as absolute essentials. The Sherwin-Williams Company requires a daily bath at the plant of all men in its dry-color department, and provides daily a clean suit of underwear which the men wear during working hours, changing back to their own clothes at quitting time. Since the adoption of this policy, illness from lead poisoning has become practically non-existent, whereas before, an average of 20 per cent of the working force was sick from this cause. How another concern handles this problem is indicated in the bulletin of the National Lead Company reproduced on page 108.

1. RESPIRATORS must always be worn where there is dust. KEEP THEM CLEAN. Shave frequently so that respirator fits snugly.

2. WASHING. Before eating and before leaving factory at night, employees must thoroughly scrub their hands, clean their finger nails, and brush their teeth.

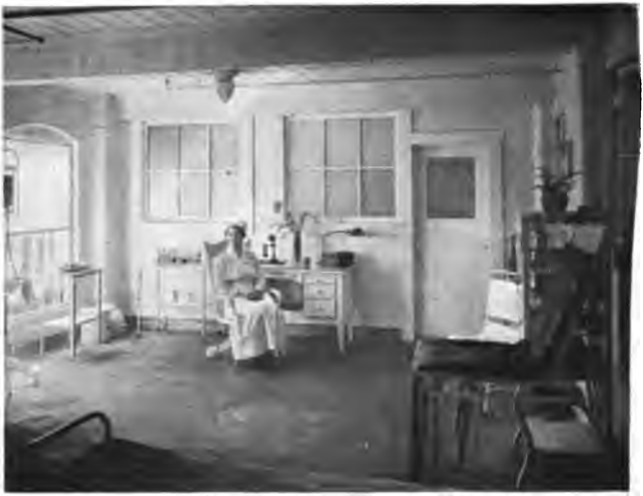
3. CLOTHES. Employees must make a complete change of clothing, including hat and shoes, upon coming to work and again at the close of the day's work. WORKING-CLOTHES MUST NOT BE WORN OUTSIDE THE FACTORY GROUNDS.

4. BATHS shall be taken daily (on Company's time) before changing into street-clothes.

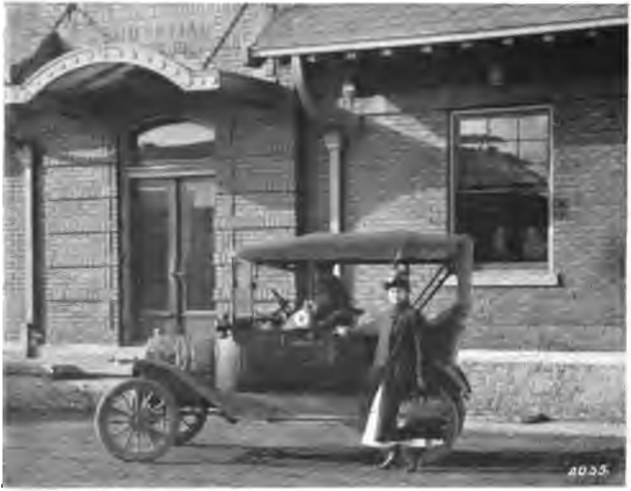
5. COMPLAINTS. The company furnishes, free of charge, respirators, sponges, tooth and nail brushes, soap, towels, and individual lockers, and has equipped the Plant with bathing facilities and sanitary devices. Any failure to furnish above supplies and any defect in the operation or sanitary condition of the machinery or equipment of the factory observed by any employee shall be called at once to the attention of the foreman in charge, and if not remedied in 24 hours, COMPLAINT SHALL BE MADE DIRECTLY TO THE SUPERINTENDENT.

6. COMPANY'S DOCTOR. Employees shall report to the Company's Doctor every ailment, no matter how slight, as soon as discovered, and shall be present at the weekly examination. The Company's Doctor will attend to employees for all ailments without charge.

THIS BULLETIN SHOWS HOW ONE FACTORY SAFEGUARDS EMPLOYEES' HEALTH



Emergency Hospital of the Goodyear Metallic Rubber Shoe Company, Naugatuck, Conn.



A Visiting Nurse is Part of the Regular Organization at the American Rolling Mill Company's Plant, Middletown, Ohio

Visiting Nurse and Hospital Service

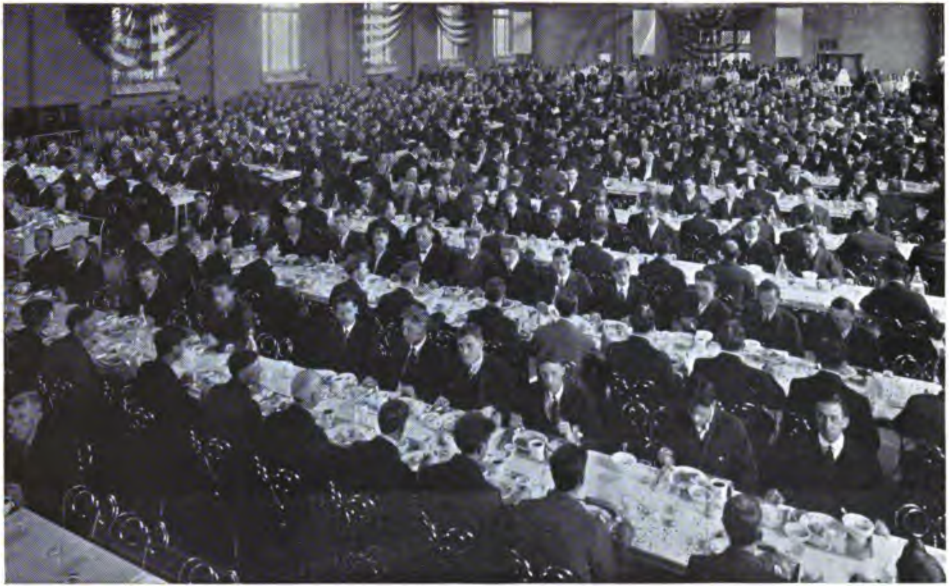
The requirement of physical examination of all applicants protects the organization against contagious diseases. Many factories provide a visiting nurse or free hospital beds, finding that such facilities pay in the long run by reducing the losses of time and man-power from illness. The representative of one plant which has a visiting nurse pointed out another way in which such a service helps the efficiency of the factory. "A man who sits up night after night nursing a tubercular wife, or helping to care for children with croup," said he, "has an increased disposition to error of judgment; he is not a safe man to run an engine." The visiting nurse renders such dangers less liable.

Large industries, and especially those in which the risk from accident is great, find it desirable to have hospitals of their own. The hospital may vary in size from an emergency room, fitted with facilities for extending first aid, to a large institution of many wards. The Colorado Fuel & Iron Company operates the Minnequa Hospital, at Pueblo, Colorado, a $350,000 equipment which has accommodations for more than two hundreds patients. The American Steel & Wire Company has twenty emergency hospitals in connection with its various manufacturing plants.

Factory Restaurants

A few years ago certain business concerns discovered that the midday luncheon problem was as much a factor in efficiency as the ventilation problem or the lighting problem. Few workmen were able to go home for lunch—the distance was too great; restaurants in the vicinity of the plant were frequently extortionate in price, and the food was none too good; the workmen who brought their lunches had to content themselves with a cold meal eaten in the workroom or outside in the yard. Some far-sighted managers decided to handle this problem directly, by providing restaurants where a few simple dishes might be bought or eating rooms where workmen might bring their lunches and eat under favorable surroundings. Gradually plants began to establish cafeterias or dining rooms. In some the food is served by the company without charge, but the usual plan is to sell at actual cost.

In Welfare Hall of the National Cash Register Company, for example, meals are served at cost of materials, the company providing the cooking and service. This dining hall has table accommodations for 2500. The Curtis Publishing Company, of Philadelphia, operates an extensive restaurant for the benefit of its employees. The Waltham Watch Com-



EMPLOYEES' RESTAURANT OF THE NATIONAL CASH REGISTER COMPANY

pany planned its dining room especially for women employees, and many factories have separate restaurants for men and women.

Night Schools and Other Educational Activities

Perhaps none of the various types of welfare work so directly help the workers to develop themselves as do the educational activities. These vary with the type and size of the plant, and with the character of the community in which it is located. As was shown earlier in this chapter, there are several cases in which the town schools are built or financed by the company which provides employment for most of the population. These cases, however, are comparatively rare in comparison with the numerous educational activities carried on in connection with the plant itself, such as night elementary schools, apprentice schools, libraries, reading and lecture clubs, and the like.

The Ford Motor Company conducts classes in reading, writing, arithmetic, and other elementary subjects for the benefit of its employees whose education in these branches has been neglected. The Colorado Fuel & Iron Company carries on an extensive educational work in Pueblo, in connection with boys' and men's clubs; opportunities are afforded for study in practically all common-school branches. And so with many concerns—a

Google

chance is given to the ambitious worker to ground himself in the fundamentals.

Apprentice schools or classes in technical branches are becoming quite common. The Ludlow Textile Schools, maintained by the Ludlow Manufacturing Associates, trains apprentices for skilled work in the textile mills of this concern. (This organization also has a Girls' Institute, in which the young women employees are given training in cooking, sewing, and other domestic occupations.) The Westinghouse Electric & Manufacturing Company conducts classes in mechanical drawing and other technical subjects for selected shop men in its employ. In addition, valuable educational advantages are provided employees of this company through the employees' organization, the Electric Club; this Club conducts six distinct courses of lectures on engineering subjects, the lecturers being eminent engineers and other experts. Among other manufacturing concerns which have shop schools may be mentioned: the American Locomotive Company, Brown & Sharpe Manufacturing Company, Cadillac Motor Car Company, Fore River Ship Building Company, General Electric Company, R. Hoe & Company (whose school was established in 1872), International Harvester Company, Packard Motor Company, Yale &

Educational Activities of the American Rolling Mill Company Are Centered in This Building

The National Cash Register Company Has a Library of 3000 Volumes for its Employees

Towne Manufacturing Company, Western Electric Company.

As a means of broadening the knowledge and increasing the brain-power of workers (as well as providing interest and recreation) many companies have established lecture courses, noon talks in the shops, educational moving-picture exhibitions, and reading rooms. The Pelzer Company provides for its employees a course of free lectures in history and travel, illustrated with the stereopticon.

Recreational Activities

Recreational interests have received a great deal of attention from welfare workers, and to the public at large it is this phase of welfare work which is best known. Here again, however, it is good business sense, and not sentiment, which has prompted the employer to act. The sort of thing which the United Shoe Machinery Company has done in providing a club house and grounds, and in encouraging athletics, sports, and various social activities among its employees, may be found duplicated in scores of places. Of course the details will vary, according to the size and character of the force to be served in each case, but the underlying idea and method of operation is the same for all.

Vacation clubs, athletic clubs, debating societies, dinner clubs, dancing clubs, study clubs, mutual-benefit clubs—these are some of the forms which the organizations centering in employees' club houses take. The principle function of employers in the matter of clubs is to furnish quarters. The organizing and carrying on of the activities will be looked after by the employees themselves.

Beautifying the Factory

No discussion of welfare work would be complete without some mention of the movement toward beautifying factory buildings and grounds. The old idea of a factory included no element of beauty or art. The building was simply a shelter for the machinery and the working force; the grounds on which the building stood were simply a site and nothing more.

That idea has passed, or is rapidly passing. Visit the plant of the National Cash Register Company in Dayton, and you find yourself in a parklike place, the grounds laid out by a landscape architect, the buildings planned to conform to a general design. The buildings of the Eastman Kodak Company in Rochester have ivy-covered walls. There are few country estates on Long Island more beautiful than the Garden City plant of Doubleday, Page & Company, with its vines, trees, shrubs, and flower-bordered walks. The plant of H. J. Heinz & Company in Pittsburgh has stained glass windows at the stair landings.

And so with many other industries. There is a business value in these things. Beautiful buildings, well ordered grounds, attractive furnishings are not only a good advertisement to the public, creating confidence and good will, but they directly influence the worker, stimulate his pride in his company, bring contentment into his work and enjoyment into his daily life. "The place for beautiful things," says Dr. Edward D. Jones, "is where they will be seen. A rich stained glass window glowing in the afternoon sun in the end of some great erection shop is a hundred-fold more useful than locked up away in the nave of a silent church."

All of these things are valuable if they are conceived and used in the right spirit—if they are organized and carried on in the right way. Their value lies in their usefulness in stimulating better work, in providing the necessary conditions to better work, and in helping workers to train or develop themselves for a better job. Even where the gain which comes through welfare work may be something indirect, like the intellectual stimulus of a lecture course or the contentment which pleasant working surroundings bring, the gain is a positive one. It cuts down labor turnover, it builds up loyalty and good will among employees, it creates "company patriotism," it takes some of the irksomeness out of work, and it adds an interest which is directly reflected in the production records.

Of course, all the various forms of welfare work referred to in this chapter are never found in one plant. In certain places the chief emphasis may be given to facilities for eating and for cleanliness; in other places, it may be given to education. The essential thing is to do *whatever is really necessary* in order to enable employees to get some pleasure out of life and to keep building themselves up physically, mentally, and morally. The wise manager doesn't attempt to give any more help than is actually needed.

Unless welfare work is reflected in the production records, unless it pays for itself in decreased labor turnover and in greater efficiency of the working force, it ceases to be a business policy and becomes merely the fad or hobby of whoever is responsible for carrying it on.

"No, I am not a philanthropist," said the president of a large hardware factory, as he conducted a visitor through quarters used for employees' recreational activities. "I'm simply a good business man. This sort of thing pays—in dollars and cents. I tell the men so. All of us in this organization are workers together, and anything which makes us healthier in body and mind, anything which brings zest and vigor and interest into our living, is a good thing for our organization. It helps the factory teamwork."

VIII

Team Spirit

GENERAL FOCH, in an address on military science delivered some years before the outbreak of the great war with Germany, said this of the method to be followed in warfare:

Organization Plus Morale

"The old theory was that to be victorious one must have numbers, better armament, a convenient base of supplies, the advantage of terrain. The armies of the Revolution, Napoleon in particular, later answered: We are not more numerous, we are not better armed, but we shall beat you because by planning we shall have greater numbers at the decisive point; by our energy, our knowledge, our use of weapons we shall succeed in raising our morale and in breaking down yours."

In other words, the secret of success in warfare is organization and morale. Without organization, morale is simply unharnessed enthusiasm. Without morale, the organization is simply a systematized collection of machinery and men, without spirit or loyalty or pride of workmanship. Both are necessary. Mere organization—plans and charts and systems and standards—is a purely mechanical thing. There must be also human interest and zeal. Morale—team spirit—is absolutely essential to all good teamwork, whether on the battlefield or in the factory workshop.

All those factors in human relations within the industrial plant which have been discussed in previous chapters—employment methods, welfare and betterment work, the safety movement—are elements both of good organization and of morale. They are profitable to the firm not only because they reduce labor turnover and promote personal efficiency, but also because they build up team spirit. They give the factory the same spirit which, as Napoleon and Foch have shown us, makes an army victorious.

"Get trained men to take pride in their organization, believe in their cause, trust their leaders, have faith in themselves, and they will be invincible," says the *Infantry Journal.* "To do this requires something more than routine training. It means the development of that indefinable something which we speak of in amateur athletics as teamwork—the spirit of cooperative loyalty which gives to the activities of the organization the 'punch' necessary to insure victory."

The Manager of Personnel

It is because they have recognized the importance of getting "the punch necessary to insure victory" into their production, that many of the largest individual corporations have concentrated their employment, safety, welfare and betterment work under a single head, and made the supervision of these activities a department in itself. Thus, instead of having one man look after the hiring of labor, another in charge of the educational and other mutual-interest work of the plant, with perhaps still a third man directing the company's campaign to reduce accidents, their idea is to have one man in general charge of all these functions. If the plant is a large one, he may have assistants detailed to each of these subdivisions of the work, but the final authority and the general direction rests in the one man—the manager of personnel.

The International Shipbuilding Corporation calls its personnel man the industrial relations manager, and other titles are used to designate this office in other concerns. Sometimes the title is that of employment manager with the duties of the position including far more than simply employment work. Whatever his title, the personnel man is the harmonizer of human relations within the organization—the man whose job it is to see that all these activities of finding and placing and training men, or reducing the toll of accidents, of stimulating interest in work and loyalty to the plant, of keeping up the standard of living and working efficiency to a high level, are kept in tune with the main purpose of the business.

Even in those companies where welfare work is separated from employment management, the closest and most intimate relations exist between the two departments. This is necessary, if the organization is to develop a high morale. The employment system may be splendidly efficient in its methods of finding, selecting, and placing men, but if the welfare work is wrongly administered, if it is so run that it disgusts or merely amuses the workmen instead of definitely helping them to greater self-development, much of the good effect of efficient employment will be neutralized or actually defeated. Everything should work together to stimulate interest in the work at the same time that it fits the employee for better work.

The safety movement, for example, affords

Utilizing Safety Work to Develop Workmen's Interest

opportunities for securing interest in men who might be indifferent to other appeals. It encourages them to think about their work and about plant equipment, and to realize that they are a real part of the whole organization. But if this result is to be gained, their share in the work of securing the safety of the plant must be actual and not perfunctory. They should be appointed on committees and encouraged to express opinions and offer suggestions.

Suggestion boxes can be made very helpful. All suggestions should receive careful consideration in open committee, no matter whether they are feasible or not. Any feeling that suggestions are ignored or sidetracked soon develops suspicion of sincerity, and is fatal to securing any lasting cooperation.

The plan of awarding prizes for safety suggestions has been both advocated and condemned by good production men. Announcement on the bulletin board or otherwise of the name of the man making the suggestion and some comment as to its value, coupled with the giving of a little additional responsibility to the suggester showing him and his associates that his work is appreciated, seems to be the best kind of award in most cases. A small prize in the form of some useful tool, such as a micrometer, might appeal to some men. Others would prefer something for personal use such as a pipe or a scarf pin. A cash reward is not generally considered advisable, for the situation here is different from one in which the suggestion leads to an improved or cheapened method of production and increased profits to the firm. In such cases, of course, there should be a reward in proportion to the benefits derived.

The effect of a genuine safety movement on the workers of a plant is hard to estimate, but the results are more far reaching than many believed possible.

It makes an excellent beginning for close contact with workers. It enables the management to get into direct or at least indirect contact with the families of the workers, which is always a good thing. Safety meetings will usually attract the attendance of wives and older children of the workers; they are as vitally interested in the safety of the men as the men themselves. They can and do act as constant reminders to men who may be naturally careless, that safety-first affects the whole family.

Home influence plays a much greater part in contentment on the job than is commonly realized. If the wife knows conditions in the

Making Home Influence Count for Team Spirit

plant, if she and the children have been benefited by the betterment work, if she knows the fair and helpful attitude of foremen and other executives, she will act as a stabilizing influence whenever a hot-headed agitator tries to stir up trouble without just cause.

All these factors must be called into play by the organization which would get the best teamwork out of its men. A man's work is his life, very largely, and to a considerable extent it is his wife's life and his children's. To make his daily work vital and interesting, to make him feel the essential place which he fills in the organization, is to add an important element in his enjoyment of life. It gives his work the dignity of a career, and lifts it from the monotony of mere routine.

Of course a man works better under such conditions. Of course he turns out a greater production and is more valuable to the organization. For one reason, he is more valuable to himself. He has discovered his importance in production, and that spurs him to make good in measuring up to the responsibility of his job. He has more self-respect, more confidence, more ambition. He knows that his job does not rest upon the whim or humor of some unthinking superior. He knows that the firm wants him to make good, that it is providing every means to help him to make good, and he knows moreover that individual success will be rewarded.

It is when an organization is so planned, manned, and managed that it develops such an attitude as this in the minds of its employees, that it may be said to be a successful organization. To be this it does not need to be a vast industry, with many thousands of employees, with general offices in New York, and plants scattered over the country. As a matter of fact, it is the large organizations that find it most difficult to stimulate team spirit, and it is these that have had to do the most extensive work in the field of developing personnel management. With the small plant it should be easy for the executives, from foremen up, to create an atmosphere of working together and to build up a team spirit that will make for greater efficiency and increased output.

Making Every Resource Count for Better Teamwork

At all events, this is the chief organization problem of all industries, big and little. It is the thing which the foreman must look out for and cooperate with at every opportunity. His job may be the supervision of a gang of machinists or the inspection of manufactured parts. He may have nothing whatever to do with these activities which seem at first glance incidental to production—employment, welfare, and safety. But he can help the employment department every day of the year to reduce labor turnover if he keeps in mind its problems and seeks in every contact with his men to make them more interested and more loyal. He can help the welfare department by making its resources better known to his men and by tying up its activities as definitely as possible with actual work in the shop. He can make safety committees and safety suggestions a vital factor in improving teamwork and increasing interest. And in doing all this, he is promoting the efficiency of his own department and of the plant as a whole.

The organization chart is worth while only if it represents a successful teamwork. Efficient teamwork is impossible without team spirit. Make team spirit a factor in your gang, in your department, in your plant, and the result will be a gain not only to the firm but to you—to every employee. For increased production brings increased earning power. It shows up in the pay envelope as well as in the firm's ledger.

QUIZ QUESTIONS

I

1. What is the purpose of an organization chart? How is it more than a picture of the organization?

2. In handling an order through the factory, what is the advantage of planning the work in advance?

3. How does the practise of planning help the plant manager? How does it help the workmen do efficient work?

II

4. What are the nine basic functions or operations in production?

5. How does analysis of the work into these fundamental operations help in organizing it?

6. What four conditions are essential to successful teamwork?

7. Why is it important that responsibility should be clearly defined and understood?

8. Why is it important that the personality as well as the qualifications of a worker be considered before he is assigned to work?

9. How does lack of balance between departments hinder production efficiency?

10. What are progress charts? How are they used in keeping departmental activities balanced?

11. How are shop committees used to promote efficiency.

12. How may a daily meeting of foremen be used to advantage in factories that have no regular planning departments?

13. How may premiums and bonus systems be used to stimulate group production?

III

14. What three steps are involved in forming the factory team?

15. What are the two general classifications of labor? What makes the difference between them?

16. Name three advantages that the city plant usually has over the country plant. Name two disadvantages.

17. How is the small-town location desirable from the point of view of a steady labor supply?

18. What labor problems are involved in an isolated location?

19. What two policies are resorted to in meeting the lack of man-power?

20. What classes of work are women best adapted for?

21. What steps are involved in fitting the worker to the job?

22. How is an apprentice school which grounds new workmen in the fundamentals, rather than one which turns them into specialists, an advantage?

23. What is the "understudy system" and how does it train men for executive work?

IV

24. What is labor turnover? How do you calculate it? For example, what is the labor turnover of a plant which employs 260 men and whose record for a year shows that altogether 910 men have been hired during that period?

25. Name three types of avoidable labor turnover.

26. Give two reasons why the loss of a trained man means an actual loss to the business. Give four reasons why his replacement with a new man is an expense to the business.

27. Why should the departments in charge of employment and training be held responsible for the men who are fired?

28. How does poor planning of labor requirements often cause hardships both to employees and to employer?

29. What are the three most frequent reasons given for quitting?

30. How may foremen, and even shop associates, save men from becoming "job suicides"?

31. How does monotony of labor affect turnover? What remedy for this cause has been tried?

32. What is meant by the "why" attitude, and how does it help in reducing labor turnover.

33. How may contests, bulletin boards, and other publicity features be used in stimulating interest and contentment in work?

V

34. What three steps are involved in keeping the force up to the proper number of employees?

35. What is meant by "budgeting" labor requirements?

36. Describe a simple method of analyzing the job requirements.

37. List seven possible sources from which applicants for work may be secured.

38. Why is it important that the interviewer, in meeting an applicant, be tactful, judicious in his questioning, absolutely fair, and discerning?

39. Why are iron-clad rules of judging dangerous?

40. What are trade tests, and how are they used in suiting the job to the worker? Name three kinds of trade tests.

41. What system may help to utilize men who fail to give satisfaction in one department?

42. Why is it valuable to require a man to visit the employment manager, or other employing official, before being allowed to draw his final pay?

VI

43. Define four types of business concerns as classified with reference to methods of employment and personnel management.

44. What is a personal record card?

45. Why is it desirable to depend on labor tickets or other records, rather than upon personal opinion, in determining the efficiency of workmen?

46. Is it cheaper to employ one man at sixty cents an hour with an output of ten units of production, or one man at thirty cents an hour who turns out five units in an equal period? Explain.

47. How is a personal record card of assistance in giving every man a square deal?

VII

48. Name three important policies in managing men.

49. What is meant by "welfare work." Why is the term "mutual interest work" a better description of its real purpose and methods?

50. Why is it good business for factories in small or isolated places to provide housing facilities, schools, improved streets, and other community features?

51. Name three types of welfare work.

52. Mention at least four factors considered in connection with factory hygiene.

53. What practical justification is there for the factory restaurant?

54. What kinds of educational activities are frequently carried on in connection with industrial plants?

55. How are athletic clubs, social organization, and other recreational agencies a help to factory efficiency?

56. What practical value is there in beautification of the factory grounds and buildings?

VIII

57. What is meant by morale? How is it important in factory work?

58. Why do corporations frequently combine the supervision of employment, welfare work, and safety in one man?

59. How may the safety movement be used to stimulate an employee's interest in his work? How may it help to arouse the interest and cooperation of his family?

60. How is it true that work-interest makes a man a better producer, both for the firm and for himself?

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